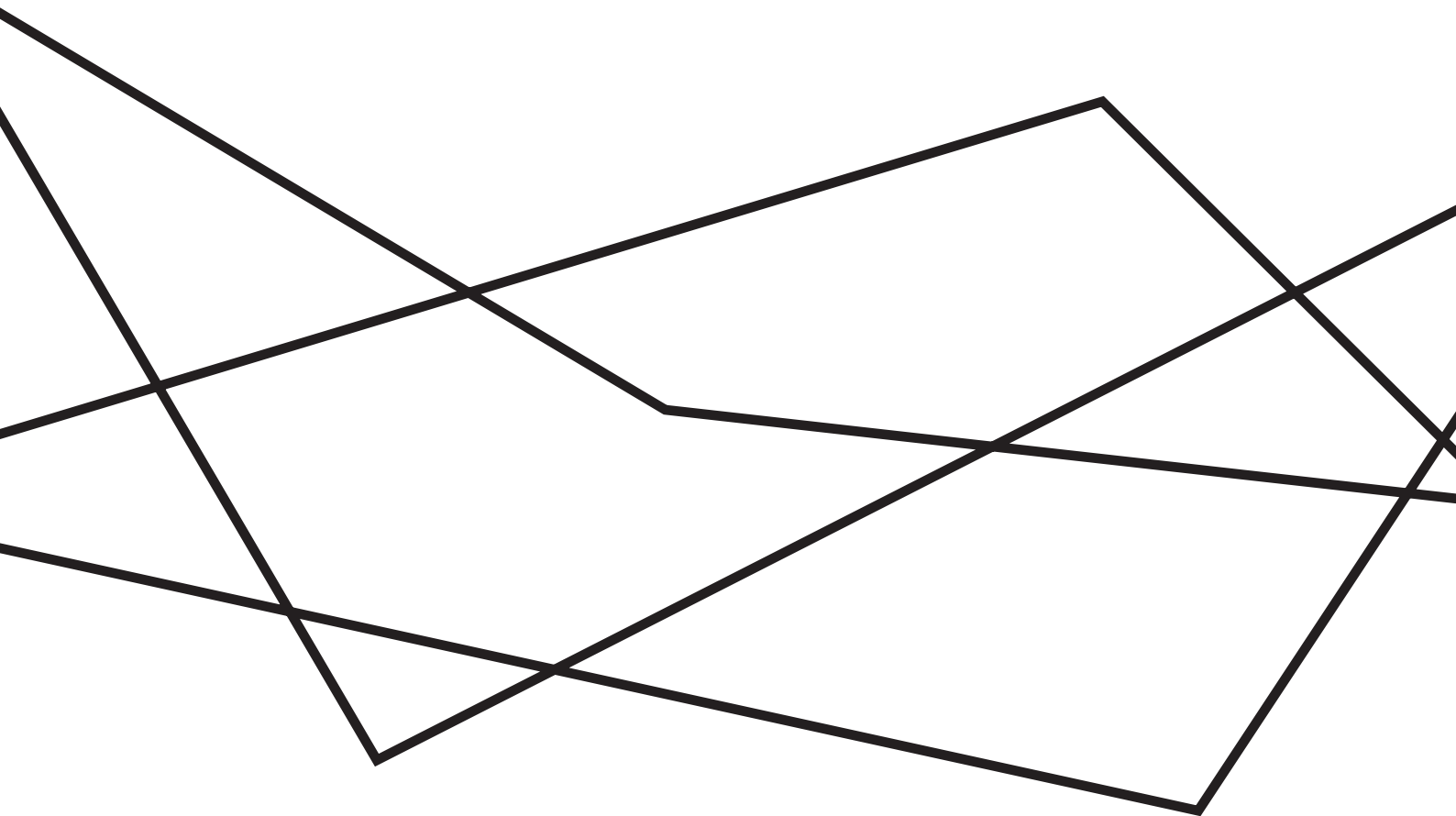


# SUSTAINABILITY **ROI** MEASUREMENT

Towards a more comprehensive model on sustainability  
investment decision-making - A Case Study



Elina Tarkkonen

Master's Thesis

Aalto University | School of Arts, Design & Architecture | Creative Sustainability

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### Abstract

Sustainability is a growing trend, which has resulted in companies around the world seeking ways to utilize it as a source of competitive advantage (Willard 2012; Laszlo & Zhexembayeva 2011). However, according to the literature on sustainability (Epstein & Rejc Buhovac 2014; Porter et al. 2012), regardless of the trend, most companies still lack adequate metrics to measure their sustainability performance and to link the results to their financial performance, which in turn, has hindered the full integration of sustainability into business.

The purpose of this thesis is to examine the possibility of measuring sustainability's return on investment (ROI) and of using that data as part of corporate decision-making and the company's broader evaluations of its societal impact. To increase the comprehension of the subject matter, the thesis first presents a literature review on how sustainability is typically approached within corporations, how it is integrated into investment decisions, and how sustainability's ROI is traditionally measured. The thesis also uses qualitative research to look at the formal investment processes of the case company. In this part, the thesis aims to deepen understanding on how sustainability is currently taken into account in the case company's investment decisions, how sustainability should be addressed in them, and whether measuring sustainability's ROI would result in more comprehensive decision-making.

The idea for measuring sustainability ROI came from Design ROI, which as a metric was developed for better understanding of the business benefits generated by the use of design (Design ROI Research Project 2012). Furthermore, the ROI methodology (Phillips & Phillips 2011) has an essential role within the thesis, because it has been applied previously to measure the ROI of sustainability initiatives. Besides examining the possible payoffs for companies, the thesis also approaches the subject matter from the rather holistic perspective of acknowledging that sustainability by its nature extends over conventional business boundaries to include the greater public good. Therefore, the objective of this thesis is also to examine the possibility of measuring externalities and using them as inputs for measuring the sustainability ROI.

The qualitative research suggests that there is a need for more comprehensive decision-making in terms of sustainability. Comprehending more holistically the impacts of various investments and having the ability to communicate them in economic terms is considered essential. Nevertheless, quantifying and monetizing the impacts of sustainability in terms of their further use in investment accounting is seen challenging and, thus, debatable. The subject matter does not only raise questions about the credibility and subjectivity of the data, but also about how the different environmental, social, and economical costs and benefits ultimately reflect back to financial performance. Regardless of the aforementioned challenges, the research shows that measuring sustainability ROI is believed to have a positive effect on decision-making when the measurement is well executed. Furthermore, the ability to pinpoint the costs and benefits for the company, as well as the society, is considered valuable and important.

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**Keywords** Sustainability, ROI, sustainability performance, corporate social responsibility

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# *Part I* | *Introduction*







## 1. Introduction

Nowadays the term ROI (return on investment) is omnipresent. Especially in my own professional field of design, the use of the word ROI has increased in the past few years, perhaps due to the growing interest in measuring the return on investment for design. Just few years ago in 2011, the Design ROI Research Project (2012) described the situation as follows: the impacts of design investments were studied broadly, but no universally applicable methods for measuring those benefits had been found (Design ROI Research Project 2012). Because of this, Aalto University, TEKES (The Finnish Funding Agency for Innovation), and the 15 member agencies of the Finnish Design Business Association implemented a year-long Design ROI Research Project between 09/2011-09/2012, with the objective of developing a model and a metric to measure the benefits of design investments. (Design ROI Research Project 2012, 4.) I personally became familiar with the project in its early stages in 2011. At the time, the subject matter was highly topical, because design professionals were continuously searching new means to justify the meaningfulness of their work in the midst of an economic downturn. The Finnish economy's decline had started in 2008 and decreased companies' willingness to invest in product development. Because of this, my colleagues in the design field were keen to find a tool that would better communicate the benefits of design in a tangible form. In many ways, The Design ROI Research Project was a real forerunner in its time, but it has also had a visible impact. Now, just a few years later, design ROI has been adopted by some Finnish design agencies and is offered as a consultation service especially targeted at business managers, entrepreneurs, and inventors.

As a result of this observation, I started pondering a few years ago whether sustainability could be

measured the same way as design. At the time, I had started to specialize in sustainability-driven design, which posed a new type of a problem: the use of design was perhaps possible to justify through a design ROI metric, but the question of how to prove hard-nosed executives that sustainability is good for business remained challenging. Due to this prevailing situation, I found it important to study whether the benefits of improved sustainability performance could also be measured through an ROI metric. Moreover, I realized that design and sustainability have a lot in common, which is why the development of design ROI could imply the possibility of a similar metric for sustainability. According to Borja de Mozota (2006), design does not only enhance differentiation and advance a company's competitive advantage through brand equity, but it is also a source of new business opportunities. Furthermore, design is considered to be good for business due to its ability to increase sales, brand value, and return on investment. (Borja de Mozota 2006, 45.) These are factors, which the literature often also links with sustainability (Willard 2012; Lazlo & Zhexembayeva 2011). Therefore, as the development of design ROI has enabled the evaluation of the tangible benefits of design to business, it is topical to examine whether sustainability could be approached in the same way. Even though many textbooks have emphasized the potential of sustainability as a business advantage, in my opinion, there is still a tremendous gap between practice and theory. The intent to pursue sustainability may exist within companies, yet the sustainability literature (Epstein & Rejc Buhovac 2014; Porter et al. 2012) implies that there is a lack of broadly adopted tools, which would help companies better understand the true payoffs of their sustainability initiatives.

To provide a new perspective for approaching

sustainability, this master's thesis will study the applicability of an ROI metric for measuring the costs and benefits generated by improved sustainability performance within for-profit organizations. First, the thesis examines the subject matter through a literature review with an objective of increasing comprehension on the issues that currently determine the baseline for approaching sustainability in business. Then, the thesis will benchmark some of the best practices for measuring corporate social responsibility (CSR), followed by an introduction to the concept of sustainability ROI. Finally, the thesis will utilize qualitative research to evaluate a case company on how sustainability is currently integrated in formal investment processes, how sustainability should be addressed with regards to investment decisions, and whether sustainability ROI could provide more comprehensive data for decision-making on investments. In addition, the thesis will provide the case company with a solution proposal as an initial step for measuring its sustainability ROI.

### **1.1 Research questions**

The objective of the thesis is to study the possibilities of measuring corporate social responsibility (CSR) through a return on investment (ROI) metric. The thesis is divided into two parts: the theoretical framework and the case study. In the theoretical framework, the subject matter is approached with an overview on how the topic is addressed in sustainability textbooks and in academic journals. The case study, instead, focuses on the Finnish food producer Raisio Nutrition and examines the role of sustainability within the company's formal investment processes. All in all, the thesis addresses the subject matter by presenting four research questions, listed below:

- 1) What kind of quantitative methods are there for measuring corporate social responsibility (CSR)?*
- 2) How can ROI be measured for sustainability?*
- 3) How are sustainability investment decisions carried out in the case company?*
- 4) Could measuring sustainability ROI improve investment decision-making in the case company?*

By broadening the comprehension of the measurement of improved CSR through an ROI metric, the thesis aims to approach sustainability as a business case for commercial organizations. First, the thesis addresses through its literature review the research questions 1 and 2. Next, the relevance of the sustainability ROI metric is studied in a real-life business context in order to evaluate its ability to create meaningful data for decision-makers. For this purpose, theme interviews as a qualitative research method are used to address the research questions 3 and 4. By increasing the comprehension on the critical factors that compose the case company's formal investment processes, the thesis aims to understand how sustainability-related investment decisions are currently made, how they should be made, and whether the sustainability ROI metric could provide more comprehensive data about the various costs and benefits involved with their CSR.

### **1.2 Significance and broader context of the thesis**

Sustainability has taken a major leap forward within the past decade. If it was once considered a trend of a rather marginal group of people, today the growing amount of global and local environmental, social, and economical challenges have made sustainability an issue that

concerns us all. Because of this, sustainability is becoming a critical element for most business sectors (Laszlo & Zhexembayeva 2011, 24). Nevertheless, several signs reveal that there is still a lack of understanding on how improved CSR creates business benefits (Willard 2012, 26). It has been argued by Berns et al. (2009) that one reason for this particular situation is the lack of adoption of metrics that would allow for the examination of the generated value and payoffs. Heretofore sustainability has been a side activity, which even if measured, has not been commonly aligned with the business objectives nor at large measured in terms of its return on investment. Even less work has been done to evaluate the generated costs and benefits to the society outside corporate boundaries, since a holistic impact evaluation tends to be even further away from traditional investment interests (Epstein & Rejc Buhovac 2014, 156).

However, when talking about the importance of measuring CSR and its generated impacts, according to many authors (Laszlo & Zhexembayeva 2011; Phillips & Phillips 2011; Kumar & Christodouloupoulou 2013) the real question is about a much broader issue than understanding a single gain. It is about creating a whole new framework for managing sustainability investments; starting from the setting of clear objectives for sustainability initiatives, which then lead through a managed project implementation to measurable results (Kumar & Christodouloupoulou 2013, 11; Phillips & Phillips 2011). Furthermore, these impacts should be presented using the language of economics, since economic data is often used in corporate decision-making to determine whether information is relevant (Phillips & Phillips 2007, 11).

All in all, in order to prove that sustainability is

good for business, the ability to compare its costs and benefits is essential (Phillips & Phillips 2011, 28). Phillips & Phillips (2011) have argued that “most green projects can create a positive return for their investors” (Phillips & Phillips 2011, 31). However, to prove the veracity of this statement, companies need to adopt tools that allow for the evaluation of these impacts in concrete terms. To address this particular need, the thesis focuses on studying the use of the ROI metric from the point of view of its feasibility in presenting sustainability’s impact to the company bottom line.

### **1.3 Research process**

I first brought up the topic of sustainability ROI to this thesis’ case company in August 2014. At the time the topic was largely unfamiliar to both of us, partly due to the lack of existing research in the field. Regardless, we shared a consensus on the importance of sustainability ROI, and agreed that studying the subject matter in the form of a master’s thesis could help in finding new perspectives for approaching sustainability within for-profit organizations. Alongside the increased general comprehension on the subject matter, the case company hoped that the thesis could provide valid economic indicators for measuring and monetizing the externalities of CSR. The case company said that the challenges of describing the created added value and sensibleness for business, generated by sustainability investments and environmental impact evaluations, was brought up often; not only within the case company itself, but also in the public discussion at large. In addition, from the perspective of risk management and corporate responsibility, the case company emphasized the need for finding new methods to evaluate risks and their possible impact on

the business. It was also argued that oftentimes the benefits that stem from the use of certificates are difficult to prove, especially if they are only evaluated through the traditional indicators of economic efficiency. Finally, according to the case company, investments are traditionally assessed from the perspective of economics and the demands for their payback period are strict. In terms of making sustainable business then, such traditional profitability indicators may be too narrow, their viewpoint rather black-and-white, and they do not allow for the efficient evaluation of externalities.

This thesis project was executed between March and August 2015. It was agreed that the master's thesis would be implemented as a six-month project, and would be compensated by the company. However, the thesis project was

managed rather independently and the work was done mostly outside the case company itself, excluding eight theme interviews that were held in April and May in 2015 and the regular meetings with the case company's thesis supervisor. In other words, during the process, I was not officially part of the organization, but rather an outsourced researcher. However, the input of the interviewed case company representatives has had an essential role in the overall process. The interviewees' viewpoints and ideas, as well as the guidance of the case company supervisor, have been an important asset for me in this master's thesis. For the case company instead, the master's thesis project has brought up interesting new viewpoints on the subject matter and firmed their readiness and intent to utilize sustainability ROI in the future.

## *Part II | Theoretical Framework*





## ***II. Theoretical framework***

In this thesis, the literature review plays an essential role. Since return on investment as a standard business metric is not broadly applied to sustainability initiatives, the subject matter is lacking in academic research. To widen our comprehension on the subject matter, the thesis looks at sustainability textbooks and academic journals to see how sustainability initiatives have been measured hitherto, and how those methods communicate about improved CSR in economic terms. Thereafter, the thesis focuses on examining the possibilities of measuring CSR through an ROI metric.

In the beginning of the first section of the thesis – the theoretical framework– the paper takes a look at design ROI, which has been one of the starting points for the thesis. Although the aim is not to focus too much on design ROI specifically, it is as a great reference point for the measurement of sustainability ROI. Within the past few years, the applicability of design ROI has been studied in Finland among a network of various design actors, Aalto University researchers and TEKES. At least partly in consequence of their Design ROI Research Project (2012), a positive change has occurred in the way design is nowadays approached in business. Therefore, the possibility of measuring the business impacts through an ROI metric is an approach that should be studied also in the field of sustainability.

After the introduction to design ROI, the focus is placed back on sustainability by examining its current role within for-profit organizations. In order to comprehend the starting point for measuring sustainability ROI, the thesis reviews how sustainability advantage is pursued in today's business realm, what the role of sustainability strategies currently is, and finally, how all of these aforementioned aspects affect corporate decision-making. Next, the theoretical

framework moves on by benchmarking some of the best practices for measuring CSR, keeping the focus simultaneously on their ability to communicate the results in economic terms. Lastly, the theoretical framework inspects ROI as a standard business metric. In this chapter, the focus is especially on two topics: the ROI methodology developed by Dr. Jack Phillips (Phillips & Phillips 2011) and the concept of measuring sustainability ROI. The theoretical framework is concluded by an overall view of the concept of sustainability ROI, including its meaning and content. In this chapter, the thesis will examine the critical factors that the measurement of sustainability ROI should address, such as stakeholders, measurement of impacts, and monetization of impact data.



## 2. Design ROI

As previously mentioned, the objective of thesis is not to put too much emphasis on design ROI, but since it is a model for the subject matter, the design ROI method is introduced as part of the thesis. The focus of this chapter is especially on the challenges of utilizing design to create business advantage and the solutions that the Design ROI Research Project (2012) has produced to overcome these challenges.

The Design ROI Report (2012) refers to the results of the Tekes' *Muoto 2005!* –program, claiming that the utilization of design is commonly hindered by the fact that companies do not have a separate budget set aside for design activities (Design ROI Research Project 2012, 16). Nevertheless, the same report also acknowledges that one of the most common problems in terms of evaluating the impact of design is the lack of a well-established definition: the term 'design' can refer to both the process and the end result. Therefore, in order to measure the impacts of design, design as a concept must be defined first. For this purpose, the Design ROI Research Project (2012) suggests approaching design from four different angles of competitive advantage: design as know-how, design as process, design as service, and design as the end result. (Design ROI Research Project 2012, 18.) Furthermore, according to the Design ROI Research Project (2012), design is linked to innovation, which, in turn, is one of the most significant sources of business growth. Innovation is not only a way to add value and create new products and services; it can also improve the existing product and service base. (Design ROI Research Project 2012, 28.)

The Design ROI Report (2012) cites Paul Lillrank who states that *"what cannot be defined, cannot be measured; and what cannot be measured, cannot be managed"* (Design ROI Research

Project 2012, 17). Similar opinions have been presented in the field of sustainability by Kumar & Christodouloupoulou (2013, 11) who emphasize the role of management as an essential element to achieving measurable results. As Borja de Mozota (2006, 47) summarizes, even though design is considered to create value for companies, its impact must be first measured so that it can be managed. Borja de Mozota (2006, 46) also emphasizes the necessity to explain, in terms of measuring a design project, how design creates value from the four perspectives of the Balanced Scorecard model (see the table 1, page 14).

According to The Design ROI Research Project (2012), design should be evaluated not only with The Balanced Scorecard model, but also within a four-dimensional framework consisting of singular corporations, singular programs and procedures, national sector, and national economy and the society. Together these four dimensions cover the micro- and macro-levels of the framework. When design is evaluated on a macro-level, it is believed to create jobs as it makes better use of and contributes to companies' intangible assets. In addition, design is strongly linked to innovation as it aims to create added value for customers, and thus, increases the sales of products. When design is evaluated on a micro-level instead, it is considered to benefit the creation of competitive advantage. (Design ROI Research Project 2012, 21-34).

One of the primary questions of the Design ROI Research Project (2012) was to study how design affects generated value, and how that value can be measured using qualitative and quantitative metrics (Design ROI Research Project 2012, 16). This thesis will now focus on examining the key findings of that research. According to the Design ROI Research Project

*How should we appear, through design, to our customers in order to achieve our vision?*

**1.Design as a difference: Design management as perception & brand**

- Market value
- Customer value
- Brand
- Consumer research

*To satisfy our stakeholders, how can design help in the business process we excel in?*

**2.Design as a performance: Design management as innovation process**

- Innovation
- Modular architecture
- Time to market
- Total Quality Management
- Research & Development
- Technology

*How will we sustain, through design, our ability to change and improve?*

**3.Design as a vision: Beyond “advanced design” management**

- Strategic value
- Vision
- Prospective
- Change Management
- Empowerment
- Knowledge learning process
- Imagination

*To succeed financially, how should design appear to our stakeholders?*

**4. “Good design is good business”**

- Financial & accounting value
- ROI
- Value for society
- Stock market value
- Socially responsible enterprise

Table 1: Balanced Score Card model for design (Borja de Mozota 2006, 47)

(2012), evaluating the benefits of design is a sum of many factors: it requires not only intuition, but also quantitative and qualitative research, and their combination (Design ROI Research Project 2012, 66). Measurement helps us to understand the information, which otherwise might be difficult to interpret, but it also allows for monitoring the implementation, evaluating the achieved results, and comparing the results with set goals (Salorinne & Laamanen 1994). However, one of the challenges, in terms of measuring the

payoffs generated by design, is the long payback period. For example, when design is used within product development, the generated benefits do not become visible until the product is launched, which makes linking the ultimate payoff with the initial design investment difficult. That is to say, “*the returns lag the investment*”. (Hertenstein et al. 2005, 5.) The Design ROI Research Project (2012) also revealed that another challenge in terms of measuring benefits is the scope of the impact. When measuring the impact of design,

one should also think broadly about the costs, taking into account for instance the various stages of manufacturing. (Design ROI Research Project 2012, 68.)

In order to evaluate the return on a design investment, the Design ROI Research Project (2012) suggests that one should first answer the following questions: *What are the activities in which the company can invest? And what type of profit impacts will the design activity generate?* Investment in design activity is believed by Aspara (2012) to have two types of financial impacts: the direct impacts that affect the cash flows and the indirect impacts that contribute to the company's intangible assets. These impacts, in turn, can be divided into four categories: increased revenues, reduced expenses, accelerated revenues, and increased intangible assets (Srivastava et al. 1999, 173). Based on this, the Design ROI Research Project (2012) approached the subject matter by linking the payoffs to the financial indicators. All in all, the research was able to recognize various benefits stemming from the use of design, such as increased brand value, access to new markets, the creation of new markets, learning, ecology, optimized life cycle, more efficient external communications, improvements in occupational well-being, and desirability among consumers. (Design ROI Research Project 2012, 90-91.)

Lastly, the Design ROI Research Project (2012) emphasizes the need to take into account the following problems related to accounting, originally suggested by Artto et al. (1990): *The width problem*: which costs and benefits are included in the calculations? *The measurement problem*: what are the methods and how accurate are they in measuring the costs and benefits? *The valuation problem*: What are the principles used for valuing the costs and benefits? *The*

*allocation problem*: How are the costs and benefits allocated within the different areas of accounting within a certain time period? (Design ROI Research Project 2012, 72.) The Design ROI Research Project (2012) also underlines that an investment decision is influenced by qualitative factors, such as employees' occupational safety, which, however, cannot be included in the ROI calculation. The generated benefits of that can be, for example, increased work motivation, yet its financial impact cannot be evaluated beforehand (Kinnunen et al, 2004, 112).

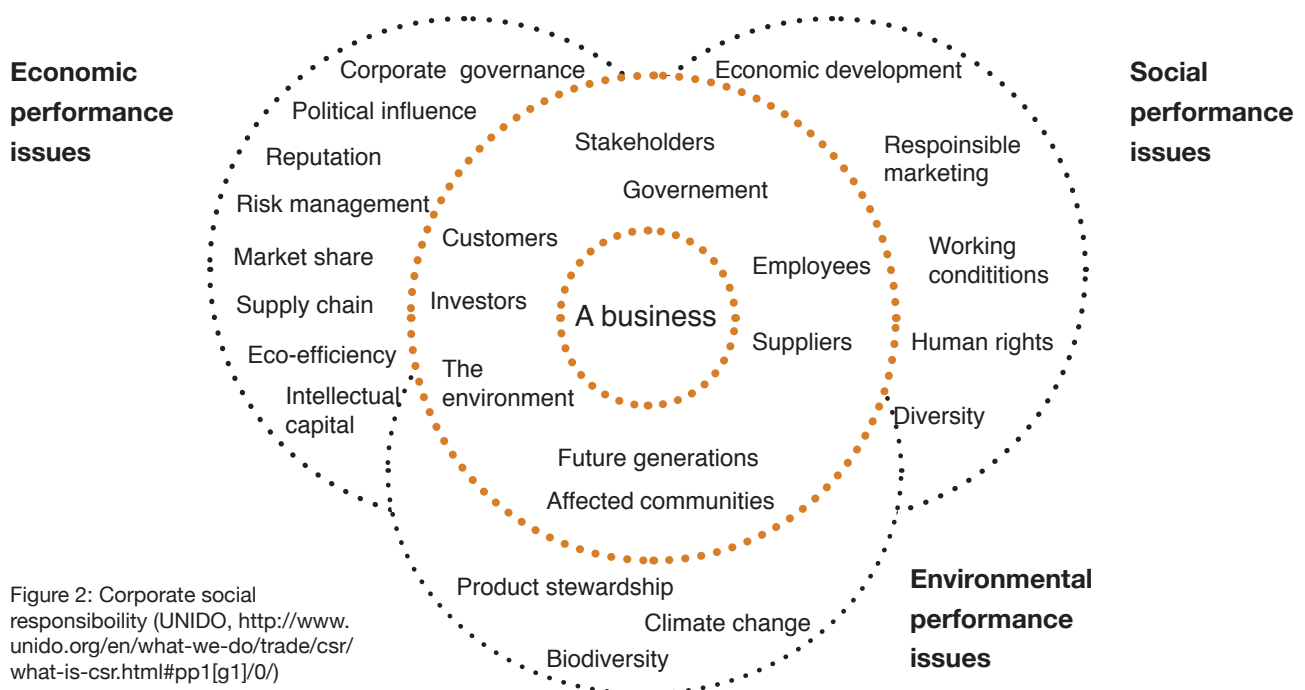
As a conclusion to this chapter it can be suggested that design ROI contains various elements that could also be utilized for sustainability ROI. First of all, similarly to Borja de Mozota's (2006) views on the importance of project management, Phillips & Phillips (2013) have also emphasized its significance in terms of the achieved ROI. As they argue, properly implemented projects are more likely to result in a high positive ROI (Phillips & Phillips 2013, 43). Secondly, companies could utilize the Balanced Score Card model, such as the one by Borja de Mozota (2006, 47), to better explain how sustainability creates value to their business. And thirdly, the applicability of an ROI metric should be further examined in the context of sustainability. Even though sustainability and design are two separate fields, in a business context they seem to share rather similar objectives. After all, who can say that Borja de Mozota's (2006, 47) vision concerning design – which emphasizes creating value for the society, allowing for change management, creating customer, market, and brand value, and enhancing innovation – would not also match the objectives of sustainability?

### 3. Sustainability

The Brundtland Commission's report from 1987 defines sustainability as *"development, which meets the needs of current generations without compromising the ability of future generations to meet their own needs"* (Bärlund, United Nations). This definition is a great moral compass, but it lacks any practical guidelines on how to integrate responsibility into everyday business (Laszlo & Zhexembayeva 2011, 38). According to McKenzie (2004, 3), sustainability has also become a multi-focal agenda, which includes interchangeably used terms such as *triple bottom line* and *sustainable development*. This, in turn, makes the term 'sustainability' carry so many implications and nuances, that in order to understand its meaning, it would need to be defined every time it is used (McKenzie 2004, 3). Therefore, it may not be a surprise that in today's business realm, there is no one single definition for sustainability. In fact, according to Berns et al. (2009) it is defined in multiple ways: whereas some companies focus only on the environmental impacts, others incorporate the societal and

economic implications into the definition as well. Due to these many interpretations, business managers do not necessarily understand what sustainability means, neither within their company nor in the industry. This, in turn, naturally affects how sustainability is perceived in terms of business value. (Berns et al. 2009.)

In this thesis, sustainability is approached from the perspective of corporate social responsibility (CSR), which is defined as *"a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders"* (UNIDO). According to UNIDO (UNIDO), CSR is oftentimes understood as a practice through which organizations achieve a balance within the triple-bottom-line – that is, economic, environmental, and societal imperatives – while simultaneously addressing expectations of their shareholders and stakeholders.



### 3.1 Quantifying sustainability

Espeland & Stevens (2008) define quantification *“as the production and communication of numbers”*, which *“is a constitutive feature of modern science and social organization”* (Espeland & Stevens 2008, 407). According to Espeland & Stevens (2008), *“numeracy, statistics, mathematics, and broadly shared methodological standards are part of the ‘grammar’ and ‘vocabulary’ that makes this use of numbers meaningful in particular contexts”* (Espeland & Stevens 2008, 404). Therefore, numbers oftentimes account for our measured things due their ability to direct attention, persuade, and create new categories of comprehending the world. Espeland & Stevens (2008, 405) conceptualize quantification as a social action, which – similarly to language – can have various meanings and purposes, which in turn, become established through their use. That is to say, just like words, the purpose and meaning of numbers can change with their time and social space (Espeland & Stevens 2008, 406). While establishing a shared language, quantification also serves another purpose: it transforms the otherwise invisible objects and characteristics into a visible form that allows for examining the object in a novel way (Espeland & Stevens 2008, 415).

Espeland & Stevens (2008) divide numbers into two categories: *numbers that mark* and *numbers that commensurate*. The first category, numbers that mark, refers to situations where numbers are used to identify a particular person – such as a football player –, locations, or objects. Such numerical marks can therefore be very simple and arbitrary, and commonly they only have a categorical relationship. Numbers that commensurate, in turn, refer to *“the valuation or measuring of different objects with a common*

*metric”* (Espeland & Stevens 2008, 408), such as providing a price which helps assess the value of goods and services. In such cases, the objects have a metrical relation to each other. (Espeland & Stevens 2008, 408-409.) According to Espeland & Stevens (2008), *“commensuration creates a specific type of relationship among the objects”*, which *“transforms all difference into quantity”* (Espeland & Stevens 2008, 408). Nevertheless, as Espeland & Stevens (2008, 408) point out, commensuration is always a process where objects must first be classified in a way that allows for their comparisons.

When quantification is examined as part of accounting, Espeland & Stevens (2008) make a point of reminding about its pragmatic nature: *“The reality of the objects measured in accounting realism is based on the trustworthiness of numbers established through standardized practices that are consistent, reproducible and ‘fair’ evaluations of past, present, and projected financial positions”* (Espeland & Stevens 2008, 418). Accounting also uses money as a generalized medium as it is considered a perfect tool that *“permits the broad circulation of claims about credit, debt, or value that compose the streams of accounts generated by the business”* (Espeland & Stevens 2008, 418). Nonetheless, Espeland & Stevens (2008) argue that *“quantification facilitates a peculiarly modern ontology, in which the real easily becomes coextensive with what is measurable”* (Espeland & Stevens 2008, 432). Even though Espeland & Stevens (2008) hold that measurement has propelled the creation of the modern world, they also argue that a world where numbers have tremendous power may not always be desirable. As Espeland & Stevens (2008) write, *“measurement can help us see complicated things in ways that make possible to intervene in them productively (consider measures of global*



warming); but measurement also can narrow our appraisal of value and relevance to what can be measured easily, at the expense of other ways knowing" (Espeland & Stevens 2008, 432).

The quantification of sustainability is a topic which does not have a single approach. While companies may use the Life Cycle Assessment (LCA) for quantifying their environmental sustainability (Epstein & Rejc Buhovac 2014, 102), sustainable development in its broader meaning has been attempted to quantify by using capital-based indicators (United Nations 2008) or other indicators that have ecological and economic dimensions (López-Ridaura et al. 2002). To a large extent, a primary challenge of quantifying and measuring sustainability stems from the question of how sustainability or sustainable development should be defined in the first place (United Nations 2008). As Shepard (2006) argues, sustainability as such is subjective: its meaning is different to different people. Whereas for some it is a process, others consider it as a goal. (Shepard 2006, 1.) However, according to Shepard (2006, 1), the lack of quantified measures for sustainability has had a visible impact in the business world: it has not only hindered fulfilling the corporate visions, but it has also left investors, analysts, and non-governmental organizations unsure of whether the companies are really achieving their written commitments in terms of CSR.

All in all, while the debate around defining the term 'sustainability' continues, new methods for quantifying sustainability are also explored. But as the research of Gray (2010) implies, there is a great difference in approaching sustainability on the societal level as opposed to the organizational level: whereas the society seeks to measure sustainable development based on how well it will *"meet the needs of*

*current generations without compromising the ability of future generations to meet their own needs"* (Bärlund, United Nations), organizations are, on the contrary, more interested in finding the balancing act between being unsustainable and conducting what is seen as sustainable business (Gray 2010). Although the importance of quantifying sustainability has been considered by Shepard (2006, 4) as an essential element of all companies' efforts towards sustainability, it is important to keep in mind that currently there is no broadly acknowledged definition for sustainability within organizations. Therefore, according to Gray (2010, 47), quantifying sustainability in such context is therefore an activity whose empirical meaning requires further clarification.

### **3.2 The barriers for pursuing sustainability advantage**

The literature review reveals the challenging nature of pursuing sustainability advantage. The varying definitions for sustainability alone cause confusion, but many business managers also struggle to comprehend the current state of their companies in terms of sustainability: identifying the right pathway and the steps needed for implementation towards sustainability can be difficult. (Berns et al. 2009.) Furthermore, according to Smith & Ward (2007) *"as long as we have capitalism, there will be questions about the responsibilities of business"* (Smith & Ward 2007, 18).

The different barriers to pursuing sustainability advantage have been researched by authors Berns et al. (2009) and Epstein & Rejc Buhovac (2014). An MIT research made by Berns et al. (2009) lists three root causes that typically obstruct tackling sustainability in a more decisive

manner. To begin with, corporate decision-making is oftentimes hindered by the lack of relevant data, due to the low measuring and monitoring of companies' progress in sustainability efforts. Secondly, another reason for the lack of pursuing sustainability advantage is the companies' inability to approach sustainability as a business case. This challenge is partly down to adopted investment frameworks, which do not allow for forecasting and planning beyond the one-to-five-year time horizon. However, among investment frameworks, the inability to gauge system-wide impacts for sustainability investments is also a factor. In fact, Berns et al. (2009) argue that many companies do not even try to map out the potential benefits from sustainability initiatives, nor the environmental and societal costs and benefits of their activities, thus hindering their ability to understand the value and threats that lie in these initiatives. Finally, the third significant barrier for the lack of adopting sustainability in companies is the flawed executions of previous sustainability initiatives, which may have failed due to organizational skepticism, the inability to institutionalize the sustainability agenda within the corporation, and the lack of measuring, tracking and reporting sustainability efforts. (Berns et al. 2009.)

Among the aforementioned reasons, Epstein and Rejc Buhovac (2014) have recognized the following factors affecting a company's readiness in adopting sustainability: the challenging nature of achieving simultaneous excellence in social, environmental, economic, and financial performance; insufficient knowledge on how to make smart trade-offs; unclear stakeholder responses; conflicting corporate and societal priorities; and the constantly changing costs of implementing sustainability. Lastly, it is critical to recognize that organizational design – "*The manner in which a management achieves*

*the right combination of differentiation and integration of the organization's operations, in response to the level of uncertainty in its external environment*" (Business Dictionary) – also affects the success of sustainability, all the way to its impact on the bottom line. (Epstein & Rejc Buhovac 2014, 263-265.)

### **3.3 Motivations behind pursuing sustainability advantage**

Willard (2012) divides companies' performance into five stages, based on their progress towards becoming sustainable enterprises. The different stages emphasize the changing motivations that push companies to seize opportunities which create sustainability advantage. The lowest stage is called *pre-compliance*, where the main driver behind a company pursuing sustainability is the need to avoid fines, prosecution, and public embarrassment. The companies on the second stage of *compliance* have instead taken one step forward and are using environmental management systems to reactively operate within the law, yet still externalizing their ecological and social collateral damage. For the stage three companies, referred to as *beyond the compliance*, possibilities to save money through proactive operational eco-efficiencies drives them towards sustainability. These companies typically exploit low-hanging fruits to improve their eco-efficiency and tend to focus on efforts that generate big results fast. Nevertheless, the stage three companies are not sustainable; rather, they are less unsustainable. Even though these companies may have taken major leaps towards eco-efficiency, the sustainability within the companies is still rather marginalized, sitting within special departments instead of flowing freely and being fully integrated into the larger governance systems. In order for a company to

become truly sustainable, it should reach stages four or five. (Willard 2012, 20.)

On stage four of *integrated strategy*, the company's focus is in contributing to a better world while also being a successful company. Typically, stage-four companies are publicly traded and highly influenced by stakeholders' interests. In addition, gaining sustainability advantage from sustainability initiatives is in the core of their focus. Companies on stage four and five are up to 90% similar to each other: sustainability is integrated into their organizational DNA and it impacts the entire value chain. Moreover, they do not consider sustainability as a cost or risk, but rather as an investment and opportunity. Nonetheless, the ultimate motivations of the companies between the stages four and five vary: whereas stage four companies put the company first and then value the sustainability after that – since they consider it is the right thing to do – the stage five companies of *purpose/passion* think the reverse. For them, doing the right thing comes first and only then do they think of the good for the company. (Willard 2012, 22-23.)

All in all, the different motivations of pursuing sustainability advantage are highly dependent on the desired benefits at hand. According to research of Berns et al. (2009, 5), the paramount reason behind sustainability investments is improved company or brand image. Other top reasons, according to Berns et al. (2005, 5) and Willard (2012), are reduced expenses, competitive advantage, employee satisfaction and increased employee productivity, business model or process innovations, increased revenues and market shares, reduced hiring and attrition expenses, and product, service or market innovations. Among these different benefits, enhancing stakeholder relations, as well

as creating sustainable value for shareholders, have been identified as strong motivations to pursue sustainability advantage (Laszlo & Zhexembayeva 2011, 43-46; Berns et al. 2009, 5).

In fact, shareholders and their interests tend to be very much at the core of making business (Laszlo & Zhexembayeva (2011, 36). According to Laszlo & Zhexembayeva (2011), a typical statement of any business manager is that “*the business of the business is to create shareholder value*” (Laszlo & Zhexembayeva 2011, 31). Shareholders are commonly understood as people, who “*own at least one share of a company's stock*” (Investopedia). The shareholder perspective of value creation is based on the idea that a corporation exists to serve its shareholders, that is, to create added economic value to their investments (Laszlo & Zhexembayeva 2011, 46). However, this view has been largely criticized. According to Laszlo & Zhexembayeva (2011, 42-43), satisfying shareholders by maximizing profit, while destroying environment and harming employees, is becoming an outdated vision. Instead, creating sustainable value, which means pursuing value creation for both the stakeholders and the shareholders, is growing in importance. Delivering value only to one party, while destroying value for others, is not considered sustainable. On the other hand, this approach must be understood also the other way around: companies attempting to do good for the society must also ensure that they produce an acceptable market rate of return for their owners. (Laszlo & Zhexembayeva 2011, 43-46.)

Lastly, Hillman & Keim (2001, 126) write that empirical studies have proved that social performance leads to improved financial performance and vice versa. Furthermore, according to Hillman & Keim (2001, 126),



building better relations with stakeholders, such as customers, suppliers, and communities can also lead to increased financial returns by helping companies to develop their intangible assets. These can, in turn, be a great source for competitive advantage.

## 4. Investing in sustainability

Investopedia describes an investment “as an asset or item that is purchased with the hope that it will generate income or appreciate in the future” (Investopedia). In general, the cost method of accounting treats investments as historical costs (Accounting Tools), which appear as assets on the investor’s balance sheet and depreciate over time (Wright 2015). It has been said that many sustainability projects should be considered as investments rather than costs (Willard 2012, 176). That is to say the capital used for pursuing sustainability creates profit or wealth over time (Investopedia). Regardless of this belief, in reality the word ‘dichotomy’ best describes these sustainability investments. Although the economic downturn has pushed companies towards sustainability efforts that have an immediate impact on the bottom line (Berns et al. 2009, 4), sustainability investments are not necessarily treated equally with other investments. In fact, the research of Berns et al. (2009, 4) indicates that companies may have higher than normal criterion for sustainability investments. Furthermore, according to a Phillips & Phillips (2011, 28), the belief that sustainability initiatives result in negative payoff is very much alive.

Sustainability as such is considered to be long-term by nature (Moldan et al. 2012, 5; United Nations 2008, 20). It has also been argued by Laszlo & Zhexembayeva (2011, 165) that viewing sustainability with a quarterly or even yearly focus is not acceptable. Pursuing sustainability value within the framework of no obvious solutions with activities such as developing new products, assessing new markets, and developing a new mindset, is always a mismatch with short-term profit maximization (Laszlo & Zhexembayeva 2011, 165). Therefore, according to Savitz (2014, 51), sustainability initiatives may face differing interests especially when they inflict

additional costs or require redirecting funds away from shareholders to other stakeholders (Savitz 2014, 51). Phillips & Phillips (2011, 51) also argue that some executives do not consider investing in sustainability smart because there is no immediate payoff.

But what exactly is a sustainability investment in the first place? Can we call any green project a sustainability investment or must sustainability initiatives have notable capital expenditures to qualify? Within the sustainability literature, there is no single, widely accepted definition for a sustainability investment. Yet, in sustainability textbooks, investment-like sustainability initiatives are oftentimes divided into three groups: incremental improvements and innovations, radical innovations, and disruptive innovations (Willard 2012; Laszlo & Zhexembayeva 2011). The activities in each group can have very different targets in terms of their value creation: whereas some sustainability initiatives focus on creating unique customer value (Laszlo & Zhexembayeva 2011, 83), other initiatives aim to achieve eco and cost-efficiency, primarily creating value for the investor himself (Willard 2012). Regardless of the type of sustainability initiative, the investment decision should be based on these six questions to senior managers (Epstein & Rejc Buhovac 2014, 199):

- *What measurement systems are currently in place and being utilized within the organization?*
- *What are the important criterion to the company and its constituencies and stakeholders?*
- *What does the company wish to accomplish with this sustainability initiative and corporate investment?*
- *What is the anticipated time frame associated with this initiative or investment?*

- *Who are the parties involved implementing this initiative or investment, and who will be affected by the results?*
- *What critical processes are associated with the successful execution of the project?*  
(Epstein & Rejc Buhovac 2014, 198-199)

To answer these questions, companies will have to customize their sustainability measurement systems and use various measures to analyze their current situation. It is essential to also acknowledge that the measurement criterion is always dependent on the used strategy and its implementation stage. (Epstein & Rejc Buhovac 2014, 199.) Furthermore, Kinnunen et al. (2006) remind that companies' management may also utilize strategic accounting, which focuses on rather different aspects to those of traditional accounting. One of the differences between these two forms of accounting is their time span for examining business performance. Companies are used to setting short-term goals, which are pursued to the detriment of long-term strategic plans. In strategic accounting the emphasis is instead on the company's success in the long run, which is believed to be achieved by improving customer satisfaction and developing employee motivation and know-how. Therefore, the strategic accounting utilizes three different approaches to examine the company's performance: value chain -thinking, strategic positioning, and analysis of cost-drivers. (Kinnunen et al. 2006, 117-118.)

#### **4.1 Sustainability strategy as a platform for sustainability investments**

Sustainability strategies are companies' responses to their sustainability issues (Kumar & Christodouloupoulou 2013, 8), but the role of

these strategies is also to enhance competitive advantage (Willard 2012, 2). That is to say, decision-makers in companies do not establish sustainability strategies for jovial reasons. According to Willard (2012), the need to improve CSR or environmental sustainability is listed only in 10th place when reviewing typical business priorities. The drivers to establishing sustainability strategies build on nine other levers of maximizing shareholder value, which are all supported by sustainability: overall company revenue, acquiring and retaining customers, lowering the firm's overall operating costs, improving quality of products and/or processes, enhancing the organization's ability to innovate, driving new market offerings or business practices, acquiring and retaining talent, improving workforce productivity, and complying with governance regulations and requirements. (Willard 2012, 28-29.)

A common reason behind companies being slow to establish sustainability strategies is the lack of real business cases, which would outline their benefits and opportunities to leaders (Willard 2012, 26). Nevertheless, establishing a strategy for sustainability and implementing it throughout the organization is essential when the aim is to use sustainability to create more value in the business. Thereafter, the task of the executives is to align the performance measurement and evaluation systems with the objectives of the sustainability strategy. This is a crucial step in terms of implementing the strategy and measuring the actual payoffs of sustainability investments. (Epstein & Rejc Buhovac 2014, 123-128.) Monitoring and measuring the implementation of the strategy not only helps one to understand whether the desired objectives have been achieved, but it also reveals whether there is a real contribution to long-term success (Epstein & Rejc Buhovac 2014, 169).

However, according to Epstein & Rejc Buhovac (2014) a sustainability strategy alone is not enough for sustainability advantage to emerge. The strategy as such is an essential platform, but its actual implementation and measurement is even more critical. True integration of social, environmental, and economic aspects into business strategies can only happen when sustainability performance is considered commercially viable. This in turn, is not possible until a clear link between sustainability performance and financial performance is identified. (Epstein & Rejc Buhovac 2014, 165.) In addition, companies must acknowledge the overall impact of their strategies, missions, structures, and systems on the sustainability strategy and its performance (Epstein & Rejc Buhovac 2014, 176).

Lastly, in order to solve the majority of today's environmental, social and economical challenges, system-level changes are needed (Laszlo & Zhexembayeva 2011, 84). This applies also in corporate culture, which ultimately defines the way in which a company goes about approaching sustainability. Although sustainability strategies have been argued by Epstein & Rejc Buhovac (2014, 74) to be essential vehicles for achieving full integration of sustainability within companies, according to Laszlo & Zhexembayeva (2011), sustainability as a separate and parallel strategy to the company's main business objectives does not allow for this. In fact, such parallel sustainability strategies may lead to difficulties in integrating sustainability to the company's other value-adding activities, such as investments. (Laszlo & Zhexembayeva 2011, 103-104.)

#### **4.2 Decision-making process in sustainability investments**

In general, capital investment decisions are based on the evaluation of cash flows, including costs and benefits, as well as the measurement of various risks (Epstein & Rejc Buhovac 2014, 96). According to Kinnunen et al. (2006), investment decisions oftentimes pose a financial risk for companies, because the decision-making is based on many future uncertainties. Whereas a successful investment may strengthen the company's financial standing, an unsuccessful investment can, by contrast, endanger the business' continuum for years to come. (Kinnunen et al. 2006, 102.) According to Epstein & Rejc Buhovac (2014, 97), one of the biggest challenges in terms of capital investments in the area of sustainability is the difficulty in evaluating the different social, environmental, and economic costs and benefits involved. To improve investment decisions, companies should understand more comprehensively the different costs and benefits of their activities, as well as identify the greater impacts of these more broadly. (Epstein & Rejc Buhovac 2014, 97.) For more comprehensive decision-making with investments, companies may use different costing systems to identify and account for different costs. Among these systems are *activity-based costing*, *life-cycle costing*, and *full cost accounting*. By using such accounting methods, companies can increase their comprehension on external costs and eliminate them with fairly simple changes. (Epstein & Rejc Buhovac 2014.) However, as Epstein and Rejc Buhovac (2014, 105) point out, the lacking value placed on different social, environmental, and economic impacts typically hinders companies' ability to internalize their external costs. Therefore, finding estimations for externalities is critical in order to measure the total costs of products, services,

processes, and other corporate activities. (Epstein & Rejc Buhovac 2014, 105.)

Typically, investment accounting takes into account five factors: acquisition costs, the holding period of the investment, the residual value of the investment, the interest rate, and the costs, the profit, and the difference of these two: the net profit (Kinnunen et al. 2006, 103). The investment evaluation typically begins with examining the acquisition costs (Kinnunen et al. 2006, 104), which refer to the price paid to buy the goods, services, or assets required by the investment (AllBusiness). According to Kinnunen et al. (2006), acquisition costs are oftentimes also the closest to the actual investment decision-making. Additionally, the investment contains various running costs and profits, which are managed as ongoing during a certain investment period. This investment period is called the holding period, which for example in terms of machine investments is approached by determining the physical, financial, and technical lifetime of a machine. The running profits within the holding time are instead composed out of the sales enabled and generated by the investment, while the running costs typically stem from the use costs of the investment. The investment decision-making also includes the calculation of residual value for the investment, which refers to the expected sales value of the investment after its use. In investment accounting, the residual value can be either positive, negative, or zero. In general, the value is positive when the investment is considered vendible after its use. However, if a land area related to the investment for example requires purification of toxins after its use, the residual value of that investment can be considered negative. Finally, as the holding period of an investment may last years or even decades, it is possible that euros earned today are more valuable than the euros earned next

year. Because of this, the investment accounting typically tries to calculate, using the traditional interest rate equations, the worth of one earned euro today and the worth of one earned euro after a certain time period. (Kinnunen et al. 2006, 104-105.)

In short, investment decisions are composed of many factors, but in the very end it is all about evaluating their profitability (Kinnunen et al. 2006, 102). This is based on identifying the costs, benefits, and risks (Epstein & Rejc Buhovac 2014, 96). That is to say, evaluating the trade-offs (Epstein & Rejc Buhovac 2014, 141). Unlike one might think, the trade-off in investment decisions is not so much about business win versus not-business win, but about short-term versus long-term business benefit (Esty & Winston 2006, 255). This naturally challenges the adoption of sustainability-oriented thinking in everyday decision making: while the CEO may strongly emphasize the importance of sustainability, the business unit managers will still find themselves under pressure to increase the company's short-term profitability (Epstein & Rejc Buhovac 2014, 260). It is also important to keep in mind that for business unit managers the question is not usually about whether to improve sustainability, but about how to actually do it based on existing strategies, structures, systems, corporate culture, people, and pressure (Epstein & Rejc Buhovac 2014, 260). Also, the available information and its veracity affect decision-making: facts tend to weigh more in decision-making than opinions (Phillips & Phillips 2007, 11). However, as Kinnunen et al. (2006, 106) argue, the common denominator for most investment decisions is that they are rarely made within companies. Such situations are thus rare and therefore companies must oftentimes resort to strategic solutions which lie outside their daily routines. Consequently, when making investment



decisions, companies typically end up comparing few investment alternatives. (Kinnunen et al. 2006, 106.)

To allocate every one of their monetary units wisely, most companies set hurdle rates for investments to determine a minimum return on investment. This procedure typically requires justifying sustainability initiatives with hard data, which may lead to undervaluing their intangible benefits, and thus, making false decisions in the area of sustainability. In some cases though, when a sustainability initiative will not presumably produce immediate monetary payoff, a flexible hurdle rate can be set, or the investments can be justified as a strategic decision. (Esty & Winston 2006, 212.) According to Willard (2012), sometimes the hurdle rates can be bypassed if the company has set aside a separate capital reserve from the rotating pool of capital. A capital reserve for sustainability initiatives is possible to create for example by splitting the savings from previous sustainability efforts and depositing the other half of that in the sustainability capital reserve and the other half in the rotating pool of capital. This capital reserve can then allow free cash flow for new sustainability initiatives outside the company's other capital funds, thus diminishing the need for hurdle rates. (Willard 2012, 92.)

As mentioned earlier, the investment accounting typically takes into account only the hard data items: the holding period of the investment, the residual value of the investment, the interest rate, and the costs, profit and the difference of the two: the net profit (Kinnunen et al. 2006, 103). Furthermore, the focus of traditional accounting is typically concentrated on the company as a business unit, whose key stakeholders are clients, suppliers, and investors. Therefore, when a company performs in its 'traditional role',

their investment accounting is mainly focused on evaluating the investment profits and the calculations' comparability. (Kinnunen et al. 2006, 116.) Nevertheless, according to Kinnunen et al. (2006), in past years the expectations towards companies have changed tremendously. New stakeholders and their interests have started to affect investment decisions. This phenomenon is partly believed by Kinnunen et al. (2006) to stem from growing environmental awareness, which is why companies have started to invest in environmental issues mainly in terms of environmental protection or safety. Even though such investments are seldom expected to create profit, they are considered essential for ensuring the profitability of other investments. Due to this, Kinnunen et al. (2006) claim that the environmental perspective has only been included in traditional investment accounting as either a qualitative or discretionary element. Kinnunen et al. (2006) also argue that in a developed corporate management's environmental accounting, the objective is to recognize, value, and measure the environmental costs and benefits. If the management's environmental accounting succeeds in this process, it will allow for measuring the environmental investments with traditional accounting methods. (Kinnunen et al. 2006, 116-117.)

## 5. Best practices for measuring and monetizing CSR

There is no single system when it comes to measuring CSR or corporate sustainability performance. On the contrary, companies often use their own ways to measure sustainability performance and in some cases they do not measure it at all. (Esty & Winston 2006, 24.) Regardless of this, Epstein & Rejc Buhovac (2014, 164) claim that it is possible to measure sustainability performance with a solid academic foundation. Furthermore, if the aim is to approach sustainability as a business case, Epstein & Rejc Buhovac (2014, 265) argue that measuring sustainability performance is, in fact, a requisite.

Sustainability textbooks (Phillips & Phillips 2011; Epstein & Rejc Buhovac 2014) have emphasized that there are two main purposes to measuring sustainability performance: the first one is to find out whether the performance is meeting the desired objectives. The other one, perhaps even more intriguing purpose, is to find out if the improved sustainability performance has had an impact on financial performance. However, linking these two performance metrics can be challenging. While Epstein & Rejc Buhovac (2014, 99) claim that companies lack the adequate systems needed to measure the environmental, social, and economic impacts caused by their products, projects, processes, and facilities, other authors posit a very different viewpoint. For example, Porter et al. (2012) argue that in spite of “a plethora of sophisticated sustainability reporting and impact measurement techniques” (Porter et al. 2012, 10), companies lack proper understanding of the use of these metrics. By citing Shelly Esque from Intel, Porter et al. (2012) also underline that having adequate data is not enough.

*“It is more about how you are using that data and how you are changing your decision-making with that data”* (Porter et al. 2012, 24).

According to Porter et al. (2012), linking sustainability performance to financial performance can be implemented in three ways. The first way approaches the subject by searching for a correlation between performance on environmental, social and corporate governance indicators, and the company value. The second way focuses on seeking ways to monetize both the positive and negative impacts caused by the company and how to best incorporate them in financial calculations. Finally, the third way does not per se rely on any statistical correlations or estimations of the impacts’ monetary values. Instead it aims to demonstrate a direct link between social outcomes and financial results. (Porter et al. 2012, 13.) In the following sub-chapters, the thesis aims to benchmark some of the best practices used for measuring CSR and communicating about the results in economic terms.

### 5.1 The Balanced Scorecard

*“The balanced scorecard is strategic management system that links performance measurement to strategy using a multidimensional set of financial and nonfinancial performance metrics”* (Epstein & Rejc Buhovac 2014, 135).

According to Kinnunen et al. (2006), the Balanced Scorecard is defined as a set of metrics, which gives a comprehensive view on the company’s current situation (Kinnunen et al. 2006, 124). The method includes financial metrics, which represent the past results of the company’s business operations, and non-financial metrics that measure for example customer satisfaction, internal processes, the organization’s innovativeness, and the organization’s responsiveness to change. These metrics, in turn, affect the company’s future

financial performance. When the balanced scorecard is used for measuring sustainability performance, the company usually chooses a few of the aforementioned perspectives depending on the challenges at hand. In some cases a fifth perspective – which includes social, environmental and economic performance indicators – is added to the balanced scorecard. This is usually the case when a company wants to very clearly highlight their sustainability performance. (Epstein & Rejc Buhovac 2014, 135-136.)

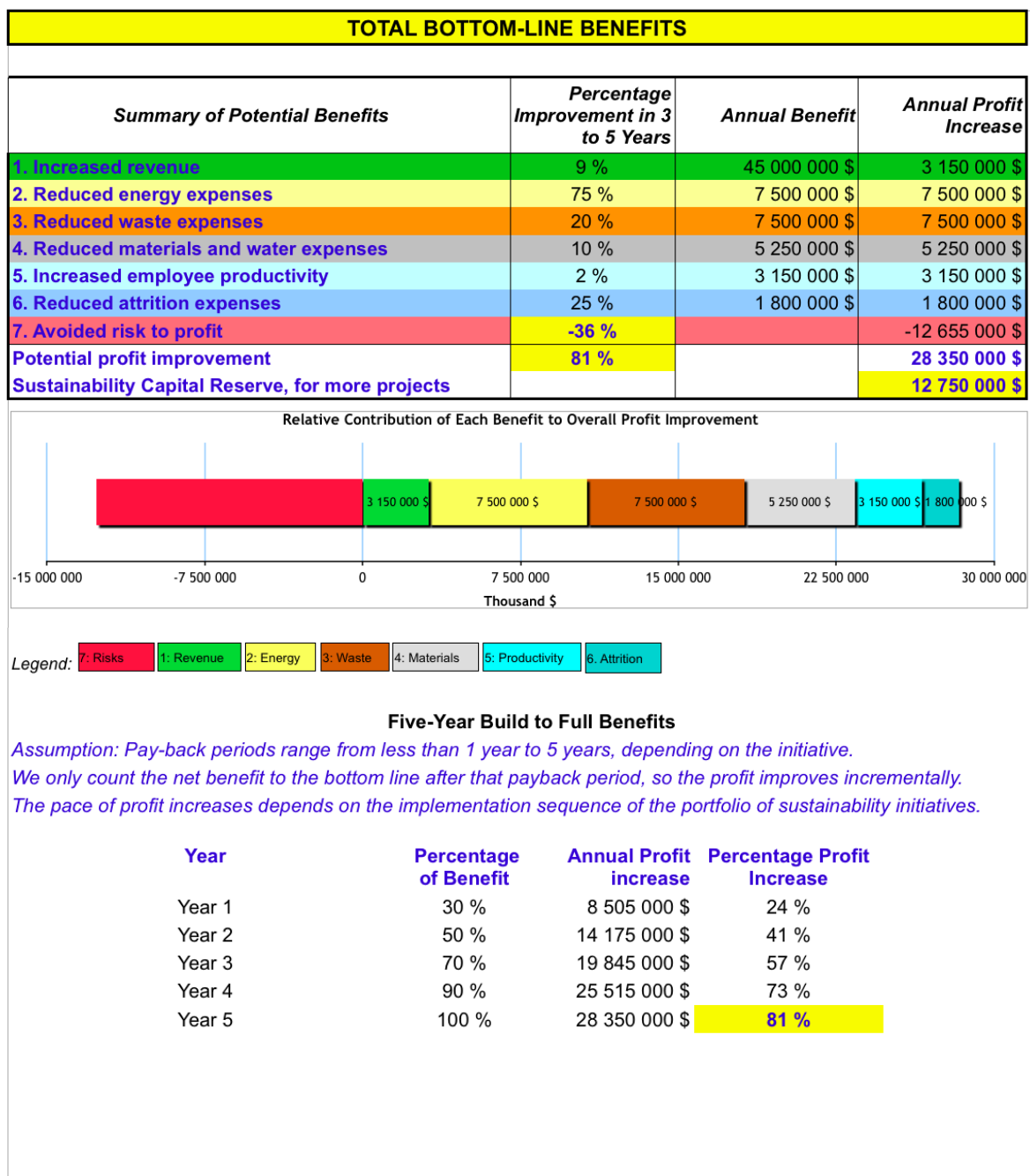
The use of the Balanced Scorecard has been designed to allow for a holistic examination of the company's performance all at once (Kinnunen et al. 2006, 124-125). The Balanced Scorecard is also seamlessly linked to company strategy, which is implemented and achieved by following the four dimensions on the Balanced Scorecard. The name of the method refers to the balance achieved within the company as a result of the company's long- and short-term objectives, the use of financial and non-financial metrics, the use of metrics that allow for examining the cause-and-effect relationship, and the use of measurements for the company's internal and external performance. (Kinnunen et al. 2006, 126.)

bottom line through seven ways of pursuing sustainability advantage. The method is focused on increasing revenues through green products and services, leasing, and through improved employee productivity, as well as the reduction of costs in terms of energy, materials, water, hiring and attrition, and risks. (Willard 2012.) (See the figure 3, page 29)

## **5.2 Bob Willard's Sustainability Advantage Worksheets**

To showcase the monetary benefits of eco-efficiency, Bob Willard who is *"a leading expert on quantifying and selling the business value of corporate sustainability strategies"* (Willard, Sustainabilityadvantage.com), has developed a method called *Sustainability Advantage Worksheets*. The easy-to-approach tool makes it possible to calculate achieved impact on the



Figure 3: Sustainability Advantage Worksheets / TOTALS (<http://www.sustainabilityadvantage.com/about.html>)

### 5.3 Contingent Valuation Method

Contingent valuation (CV) is a method for determining the passive use values of social, environmental, and economic impacts, obtaining the estimate of the benefits for the greater public good. The estimate can be used in cost-benefit analysis or in environmental impact assessment. (Venkatachalam 2003, 89; Epstein & Rejc Buhovac 2014, 155-156.) When used in environmental economics, its application includes the estimation of non-use values and nonmarket use values in terms of environmental resources (Venkatachalam 2003, 90). According to Venkatachalam (2003), the CV-method was originally developed by Siegfried von Ciriacy-Wantrup, who in 1947 proposed that *“the prevention of soil erosion generates ‘extra benefits’ that are public goods in nature, and therefore, one possible way of estimating these benefits is to elicit the individuals’ willingness to pay for these benefits through a survey method”* (Venkatachalam 2003, 90). As Venkatachalam (2003) argues, the results generated by the CV method are considered to be theoretically valid *“if the results conform to the underlying principles of economic theory”* (Venkatachalam 2003, 91). Meaning that the theoretical validity involves assessing the CV method’s willingness to pay (WTP) values and regressing them against the standard economic values (Venkatachalam 2003, 91).

Although the method has been criticized for being imprecise, it has also been noted that the tool improves managerial decisions due to its ability to determine both the positive and negative impacts of the company’s offerings and their activities on the community and other stakeholders (Epstein & Rejc Buhovac 2014, 156). One of the method’s drawbacks is the difficulty in interpreting the disparity between the willingness

to pay (WTP) and willingness to accept (WTA) values. As Venkatachalam (2003, 92) argues, the theoretical and empirical demonstrations show that the WTA value is always greater the WTP value in terms of the examined issue. This may however be because of the ‘income effect’: the WTP for a good is bound to income, whereas the WTA value is not (Venkatachalam 2003, 92). Therefore, Venkatachalam (2003) suggests that the question of which of these values should be used as a measure in CV surveys requires careful consideration (Venkatachalam 2003, 89). Venkatachalam (2003, 119) also argues that despite widely accepted notions that WTP measures are better suited to CV studies, in developing countries the WTA measures might actually be more appropriate.

### 5.4 Shared value

Michael E. Porter and Mark Kramer introduced the concept of shared value for the first time in 2011 in the article *Creating Shared Value*, published in *Harvard Business Review*. The article was soon followed by a broader report titled *‘Measuring Shared Value: How to Unlock Value by Linking Social and Business Results’*, which, with the commitment of multi-national corporations, such as Nestlé, Intel, and Intercontinental Hotels Group, applied the concept of shared value to a real-life business context. The basic idea of the concept was that by contributing to social wellbeing, companies could improve their own financial performance. Through this type of a corporate performance, companies could therefore help solve fundamental global challenges while staying true to their mission of making profit. As a tool, shared value is targeted primarily to managers. Its purpose is not to replace existing measurement approaches, but rather, complement them. (Porter et al. 2012.)

According to Porter et al. (2012), the baseline for the concept stems from the idea that if companies do not measure their progress towards social objectives or understand how their social performance reflects on the economic value of their business, they cannot understand the extent to which they are creating shared value either. That is, the social value outside the corporate boundaries as well as the business value for the company itself. This, in turn, may lead to companies missing on great opportunities for new innovations, growth, and a broader social impact. Therefore, the concept of shared value as a framework, which allows linking social progress directly to business success, and vice versa, came to fruition. The research of Porter et al. (2012) also claims that the measurement of shared value differs from other existing measurement approaches in its practicality and feasibility, assisting companies in a novel way to utilize shared value strategies. (Porter et al. 2012, 2.)

Porter & Kramer (2012, 3) argue that companies pursue shared value on three different levels: for reconceiving products and markets, redefining productivity in the value chain, and enabling the development of local clusters. Each of these levels aims to create their own unique business and social results. For example, at the level of reconceiving product and markets – while increasing revenues, market shares, and market growth – companies can create social results, such as improved nutrition and education. The level of enabling cluster development, on the other hand, allows companies to reduce costs, secure greater supply, improve their profitability and simultaneously create social benefits in the form of improved health and better incomes. (Porter et al. 2012, 3.)

### **5.5 PUMA's Environmental Profit & Loss Account (E P&L)**

As a last example of best practice, the thesis presents PUMA®'s E P&L tool, which was established in 2011. The Executive Chairman of Puma SE and Chief Sustainability Officer of PPR Jochen Zeitz claims in that PUMA®'s E P&L was inspired by The Economics of Ecosystems and Biodiversity (TEEB) and PUMA®'s willingness to *"demonstrate business as a force for better"* (Puma 2010). According to Puma® (Puma), their operations and supply chain are dependent on natural resources, such as fresh water, clean air, healthy biodiversity, and productive land. Therefore, the company established the PUMA® E P&L as an attempt to measure the immense value of nature to the business, including the total costs of their business impacts. The objective of the PUMA® E P&L is to place a monetary value on PUMA®'s impact on nature for the firm's entire value chain. (Puma.)

As PUMA® announces on their web page, *"providing goods and services will always have some impact on the environment"* (Puma). The company also states publically that their challenge is reducing the impact on the environment as much as possible while simultaneously continuing to deliver value to their customers (Puma). Regardless, PUMA® states that *"by putting a monetary value on our environmental impacts, we are minimizing both business risks and environmental effects"* (Puma). In fact, according to PUMA® (Puma), measuring is as an essential activity, because as long as impacts cannot be measured, they cannot be managed nor reduced either.

PUMA® E P&L is focused on measuring and valuing both the reductions in ecosystem services as well as the increases in environmental

impacts generated by their own operations or by the organization's supply chain (Puma 2010, 2). According to PUMA® (2010, 10), the use of the PUMA® E P&L has allowed PUMA® to convert non-financial impacts into monetary values, which in turn has revealed that the greatest impacts caused by the company stem from the use of water and the generation of greenhouse gas (GHG) emissions. The firm's impacts were measured according to the table 4 (below), which implies that the total value of the caused impacts has risen up to EUR 145 million a year. Nevertheless, the PUMA® E P&L tool has helped the company not only to evaluate the real total cost of their business operations, but also to comprehend where in the value chain these environmental impacts are actually generated.

Moreover, the results showed that only 6 % (EUR 8 million) of the impacts arose from PUMA's own operations, while the majority of the critical impacts came in fact from the production of raw materials. (Puma 2010, 10.)

Lastly, according to Puma® (2010, 23), the PUMA® E P&L has helped the company pursue their vision of becoming the world's most desirable and sustainable sport-lifestyle firm, because it has allowed them to understand the scale of their true impacts. Due to this, the PUMA® E P&L has not only helped PUMA® to better manage its caused impacts, but also mitigate them, which has provided them with multiple other competitive advantages. (Puma 2010, 23.)

Area	Typical activities		
<b>PUMA Operations</b>	<ul style="list-style-type: none"> <li>• Offices</li> <li>• Shops</li> </ul>	<ul style="list-style-type: none"> <li>• Warehouses</li> <li>• Business travel</li> </ul>	<ul style="list-style-type: none"> <li>• Logistics</li> <li>• IT</li> </ul>
<b>Tier 1 suppliers</b>	<ul style="list-style-type: none"> <li>• Shoe manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Apparel manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Accessory manufacturing</li> </ul>
<b>Tier 2 suppliers</b>	<ul style="list-style-type: none"> <li>• Outsole production</li> <li>• Insole production</li> </ul>	<ul style="list-style-type: none"> <li>• Textile embroidery and cutting</li> <li>• Adhesive and paint production</li> </ul>	
<b>Tier 3 Suppliers</b>	<ul style="list-style-type: none"> <li>• Leather tanning</li> <li>• Petroleum refining</li> </ul>	<ul style="list-style-type: none"> <li>• Cotton weaving and dyeing</li> </ul>	
<b>Tier 4 suppliers</b>	<ul style="list-style-type: none"> <li>• Cattle rearing</li> <li>• Rubber plantations</li> </ul>	<ul style="list-style-type: none"> <li>• Cotton farming</li> <li>• Petroleum production</li> </ul>	<ul style="list-style-type: none"> <li>• Other material production</li> </ul>

Table 4: PUMA's environmental impacts (Puma 2010, 6)

The Environmental Profit and Loss

EUR million	Water use	GHGs	Land use	Other air pollution	Waste	TOTAL	% of total
	33%	33%	25%	7%	2%	100%	
<b>TOTAL</b>	<b>47</b>	<b>47</b>	<b>37</b>	<b>11</b>	<b>3</b>	<b>145</b>	100%
PUMA operations	<1	7	<1	1	<1	8	6%
Tier 1	1	9	<1	1	2	13	9%
Tier 2	4	7	<1	2	1	14	9%
Tier 3	17	7	<1	3	<1	27	19%
Tier 4	25	17	37	4	<1	83	57%
<b>Regional analysis</b>							
EMEA	4	8	1	1	<1	14	10%
Americas	2	10	20	3	<1	35	24%
Asia / Pacific	41	29	16	7	3	96	66%
<b>Segments</b>							
Footwear	25	28	34	7	2	96	66%
Apparel	18	14	3	3	1	39	27%
Accessories	4	5	<1	1	<1	10	7%
<b>Intensity</b>							
	Environmental impact (EUR) per EUR 100 of sales						
Footwear	1.8	2.0	2.4	0.5	0.1	6.7	
Apparel	1.9	1.5	0.3	0.3	0.1	4.1	
Accessories	1.2	1.5	0.00	0.3	0.00	2.9	

Table 5: PUMA's E P&amp;L Results (Puma 2010, 8-9)

	Water use Million cubic metres	GHGs Tonnes CO <sub>2</sub> e ('000)	Land use Hectares ('000)	Other air pollution Tonnes ('000)	Waste Tonnes ('000)
<b>TOTAL</b>	<b>77.5</b>	<b>717.5</b>	<b>107.8</b>	<b>6.6</b>	<b>42.3</b>
PUMA operations	0.1	110.1	<0.1	0.4	6.5
Tier 1	5.3	131.4	0.3	1.1	21.2
Tier 2	20.3	108.8	0.2	1.0	8.3
Tier 3	18.4	112.7	0.2	1.2	3.3
Tier 4	33.4	254.5	107.1	2.9	3.0
<b>Regional analysis</b>					
EMEA	9.3	123.0	1.3	0.7	5.0
Americas	14.6	150.8	55.1	1.8	5.5
Asia / Pacific	53.6	443.7	51.4	4.1	31.8
<b>Segments</b>					
Footwear	8.2	72.9	0.4	0.7	3.9
Apparel	30.8	210.0	17.3	1.6	7.8
Accessories	38.5	434.6	90.1	4.3	30.6

Table 6: PUMA's E P&amp;L Results (Puma 2010, 8-9)

Impact	Measurement
Climate change	Tonnes of GHG emissions
Water scarcity	Volume of water used
Loss of biodiversity and ecosystem services	Area of ecosystem converted
Smog and acid rain	Tonnes of particulates, ammonia, sulphur dioxide, nitrogen oxide, volatile organic compounds (VOCs) and carbon monoxide
Leachate and disamenity affects from landfill and incineration of waste	Tonnes of waste to landfill and incineration

Table 7: Scope and boundary of E P&amp;L (Puma 2010, 12)



## 6. Return on investment (ROI)

In this chapter the objective is to examine return on investment (ROI) as a performance measure. First, the following sub-chapter presents ROI as a standard business metric with three equations: the *benefit-cost-ratio*, *ROI percentage*, and the *payback period*. Then, the thesis introduces the ROI methodology (Phillips & Phillips 2011), which is a comprehensive tool for gathering and measuring a wide range of performance data. For the purpose of this thesis, the ROI methodology works well as a method, because it has been previously applied to measure the return on investment for sustainability initiatives (Phillips & Phillips 2013). Finally, the thesis examines the framework for measuring sustainability ROI, including measurement boundaries, impacts, and the monetization of impact data.

### 6.1 ROI as a standard business metric

Return on investment (ROI) is “a performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments” (Investopedia). It is designed particularly for the needs of top executives and managers, but also for other stakeholders interested in actual data (Phillips & Phillips 2007, 3). All informed investment decisions can be based on ROI calculations (Beattie) and the ROI value is commonly a primary determinant for many executives’ decisions (Phillips & Phillips 2007, 10). In other words, investment decisions are seldom made purely on a gut feeling (Phillips & Phillips 2011, 35). Instead, if the calculated ROI is positive, the investment is more likely to be considered a good deal, whereas a negative ROI can even lead to the shutdown of a project (Phillips & Phillips 2007, 10). In short, the ROI metric is typically used to support decision-making, which

is perhaps a reason for the growing interest in the wider application of ROI metrics.

As an equation, calculating ROI is very straightforward as it is all about subtracting the investment costs from the investment benefits, and dividing that total by the cost of the investment. Therefore, it can be applied as such to multiple types of investments in order to examine the bottom line return. However, depending on the investment, the equation variables do not stay the same. (Beattie.) That is to say, the calculation highly depends on what is included in the costs and the gains (Investopedia). In general, standard ROI calculations include three financial metrics: the benefit-cost-ratio (BCR), ROI percentage, and the pay back period, which can all be calculated using simple and basic equations. (Phillips & Phillips 2011, 87.)

To calculate the benefit-cost ratio, the project benefits must be divided by project costs.

$$\text{BCR} = \frac{\text{Project benefits}}{\text{Project costs}}$$

ROI percentage becomes by dividing the net project benefits by project costs, multiplied by 100.

$$\text{ROI\%} = \frac{\text{Net project benefits}}{\text{Project costs}} \times 100$$

Finally, calculating pay back period is possible by dividing project costs by annual project benefits.

$$\text{Pay back period} = \frac{\text{Project costs}}{\text{Annual project benefits}}$$

Equations: (Phillips & Phillips 2011, 87)

Measuring ROI is not, however, limited to the use of one singular equation, but in fact, the concept is extended to a whole methodology. Dr. Jack J. Phillips, who created the ROI methodology back in the early 1970's (Phillips & Phillips 2011, ix), wanted to build a tool that would allow for the gathering of multiple data to back up ROI calculations. Furthermore, his aim was to improve the measurement of ROI, which is why his methodology is especially focused on process improvements. (Phillips & Phillips 2011.)

As mentioned before, ROI is calculated by comparing the project costs and benefits, albeit the calculated ROI ultimately depends only on the items that are included in the equation as costs or benefits. In order to enable taking into account multiple data in the equation, Dr. Jack J. Phillips developed a six level methodology, with the objective to collect data on the various impacts emanating throughout the project, and finally, to use that data as input in the ROI calculations. In short, the ROI methodology is based on achieved results. (Phillips & Phillips 2011, 42.) Furthermore, the methodology can be applied to many areas of focus, such as human resources, knowledge management, leadership, risk management, and advertising, but also to sustainability (Phillips & Phillips 2011, x).

Each of the six ROI methodology levels (see the table 8, page 36) is equivalent to different project stages. The methodology begins from the project objectives, which guide the project implementation all the way until the end while gathering various data (Phillips & Phillips 2011). Due to this, each of the methodology levels is focused on measuring very different types of organizational processes and the used measures between the six levels vary depending on the measured area. (Phillips & Phillips 2007, 14.) Moreover, as the ROI methodology by its

nature aims to improve processes holistically, the methodology itself may have an effect on ROI: after all, properly developed and implemented projects are more likely to result in a high positive ROI (Phillips & Phillips 2013, 43).

Phillips & Phillips (2011, 65) note that in order to be able to calculate a credible ROI, several components must be developed and integrated into the project. Firstly, the ROI methodology emphasizes that there is a need for establishing an evaluation framework, which helps define the evaluation levels and types of data, as well as the ways in which the data are captured at each level. Secondly, a process model should be created, with step-by-step workings for the ROI calculations. This process includes isolating the impacts of the sustainability initiative from other factors, which is essential for proving the actual payoff. Thirdly, the methodology requires that operating standards keep the project on the right track. These guiding principles are important in terms of building credibility among key stakeholders within the company. Fourthly, the methodology aims to establish successful applications that prove how ROI works in different sustainability initiatives. Lastly, the ROI methodology underlines that a successful sustainability initiative is based on resources and devotedness, in terms of addressing issues such as internal skills building, goal setting, and responsibilities. As Phillips & Phillips (2011) propose, the ROI methodology should become a routine procedure for each sustainability initiative, providing a credible and easily replicated method despite additional costs and needed time from the budget of the sustainability initiative. (Phillips & Phillips 2011, 65-66.)

While the ROI methodology aims to produce credible data, its task is also to align the sustainability initiative with the business

LEVEL	Measurement focus	Typical measures
<b>0: Inputs and indicators</b>	Inputs into the project, including costs, project scope, and duration	Types of project Number of projects Number of people Hours of involvement Cost of projects
<b>1: Reaction &amp; perceived value</b>	Reaction to the project, including the perceived value of the project	Relevance Importance Value Appropriateness Fairness Commitment Motivation Skills
<b>2: Learning &amp; awareness</b>	Acquisition of knowledge, skill, and information to prepare individuals to move the project forward	Knowledge Capacity Competencies Confidence Awareness Attitude
<b>3: Application &amp; Implementation</b>	Use of knowledge, skill, and/or information and system to support to implement the project	Extent of use Actions completed Tasks completed Frequency of use Behavior change Success with use Barriers to application Enablers to application
<b>4: Impact</b>	Immediate and long-term consequences of application and implementation expressed as business measures usually contained in the records	Productivity Revenue Quality/waste Costs Time/efficiency CO2 emissions Brand Public image Customer satisfaction Employee satisfaction
<b>5. ROI</b>	Comparison of monetary benefits from project to the project costs	Benefit-cost ratio (BCR) ROI (percentage) Payback period

Table 8: Levels and Types of Data (Phillips &amp; Phillips 2011, 71)



objectives. For this purpose, the methodology provides a set of tools, which aim to align each of the methodology levels (see the table 8) in accordance with business needs. (Phillips & Phillips 2011, 74.) The ROI methodology (Phillips & Phillips 2011, 74-76) suggests that each sustainability initiative should begin with an initial analysis, which defines the payoff needs, business needs, performance needs, learning needs, and preference needs, which the project aims to solve. Above all, it is the successful implementation of the project, which matters the most in terms of ROI. As Phillips & Phillips (2011) go on to state, “*without successful implementation, positive impact will not occur – and no positive return will be achieved*” (Phillips & Phillips 2011, 137). That is to say, ultimately, the achieved ROI is dependent not so much on what has been implemented, but rather on how the project has been implemented.

## 6.2 Sustainability ROI

Excellence in sustainability performance is a desired goal for many companies (Epstein & Rejc Buhovac 2014, 89), but sustainability initiatives are seldom considered as capital expenditures (Phillips & Phillips 2011, 41). Additionally, sustainability initiatives are rarely linked to the financial health of the organization, thus hindering particularly the comprehension of how stakeholder actions affect revenue and cost streams (Epstein & Rejc Buhovac 2014, 39-40). Even though many companies have highly developed tools for capital investments, these tools are not commonly used when making sustainability related decisions (Epstein & Rejc Buhovac 2014, 89).

The ROI Institute, run by Patricia Pulliam Phillips and Jack J. Phillips, has published several

highly noted publications, such as *The Green Scorecard: Measuring the Return on Investment in Sustainability Initiatives* (2011) and *Measuring Return on Investment on Green Projects and Sustainability Efforts* (2013). These publications seek to prove that sustainability initiatives can be measured through the ROI methodology like in any other project. In fact, Phillips & Phillips (2011) have taken a very straightforward approach to applying the methodology to sustainability initiatives, which has enabled them to generate quantifiable data from them. Since the basic idea of the ROI methodology is to map out the project costs and its gained benefits – and ultimately convert them as widely as possible to actual money – Phillips & Phillips’s (2011) approach does not make any exceptions when it comes to sustainability initiatives. On the contrary, their methodology very respectfully offers ways to convert nearly any intangible benefit, such as job satisfaction, into a form that allows for the measurement of its monetary value. (Phillips & Phillips 2011.)

Overall, having a better understanding of sustainability as a business case does not only improve decision making in terms of resource allocation, but also increases the amount of resources allocated to sustainability initiatives, thus, enhancing the company’s CSR, and ultimately improving the firm’s financial performance (Epstein & Rejc Buhovac 2014, 39-40). In addition, according to the research of Esty & Winston (2006), in sustainability-driven projects, positive ROI values are more likely to occur than negative ones. Furthermore, sustainability initiatives do not just result in various tangible and intangible benefits (Phillips & Phillips 2011), but they are also believed to make an impact on the whole value chain by strengthening its various links (Willard 2012, 30).

Measuring sustainability ROI can be considered to be based on a few factors: first of all, it is about pursuing the sustainability sweet spot - that area, where the greater public good comes together with the pursuit of profit (Willard 2012, 37). In other words, return on investment for sustainability is not just about generating profit for the company. It is also about investing in greater public good and thus, creating welfare in the three areas of sustainability: the environment, society, and economy. Secondly, sustainability ROI requires identifying the impacts for the company as well as society, since without impact, there is no return on investment (Phillips & Phillips 2007, 84). Nonetheless, it is important to keep in mind that sustainability ROI, just like any other ROI, should provide meaningful data primarily for the investor himself. Therefore, setting the boundaries for the evaluated impacts is essential: ultimately these boundaries determine the scope of the meaningful variables that are entered into the ROI calculations, which in turn, compose the baseline for the investment evaluations. That is to say, the more holistically different the costs and benefits are entered in the ROI calculations, the more accurately the ROI metric calculates their impact on the bottom line. Lastly, as sustainable business should create a positive impact on the three areas of sustainability, Savitz (2014, 5) suggests that a positive ROI should be measured, documented, and reported on all of the three bottom lines too.

### 6.3 Measurement boundaries

In the world of various sustainability challenges, it is critical to ask which impacts companies should most take into account when aiming to improve their CSR. This question is essential, because it addresses the issues that companies should also consider in their decision-making

and therefore also when measuring sustainability ROI. As authors Kumar and Christodouloupoulou (2013) point out *“it is important for companies to recognize that their actions or inactions impact the future prospects and that sustainability is a passport to a secure future”* (Kumar & Christodouloupoulou 2013, 6). But to what extent should companies take into consideration their impact on for example ecosystem services and the greater public good? As Willard (2012, 20-22) argues, companies can be divided into five categories depending on their motivations to pursue sustainability advantage. In other words, the baseline can vary tremendously. Consequently, when examining the measurement boundaries in terms of tackling sustainability challenges, it is perhaps good to start from the elements that principally make up every business, such as stakeholders.

According to the Business Dictionary (2015), a stakeholder is *“a person, group or organization that has interest or concern in an organization”* (Business Dictionary 2015). According to Esty & Winston (2006), stakeholders are commonly regarded as either customers, suppliers, or perhaps government regulators. Due to our changing world, the definition of a stakeholder is, however, expanding from a rather small and specified group of people to concern even the whole of civil society. (Esty & Winston 2006, 289.) In order to truly embrace sustainability, companies must identify a much wider group of stakeholders affected by their operations (Savitz 2014, 3). The research also shows that stakeholders have an essential role in shaping the company's sustainability efforts (Kumar & Christodouloupoulou 2013, 7). Furthermore, it has been suggested by Kumar & Christodouloupoulou (2013, 10) that companies should take into account not only the industry in which they operate in, but also the social and environmental

concerns of all their stakeholders, when the firm is mapping its sustainability issues and establishing its sustainability strategies. This approach is also supported by Savitz (2014), who states in his book *The triple bottom line* that

“companies are accountable to more people than they may realize” (Savitz 2014, 27). According to Esty & Winston (2006, 67) external stakeholders can be divided into five different groups (see the figure 9 below):

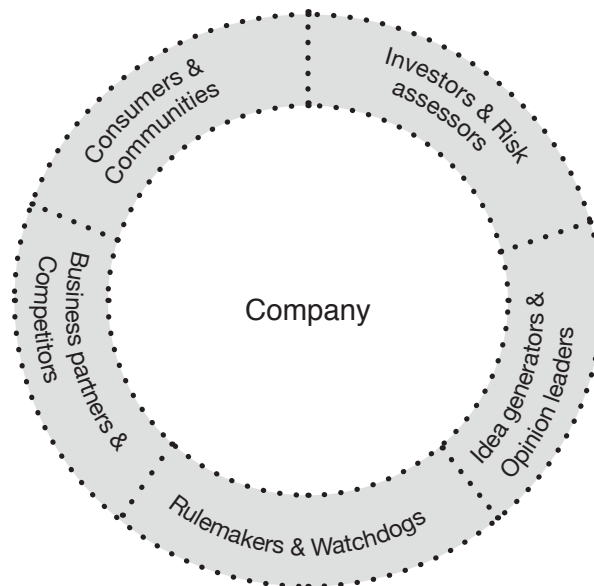


Figure 9: Eco-Advantage Playing Field: The “Five Forces” (Potter) that may have an effect on business (Esty & Winston 2006, 67)

Considering external stakeholders is essential, but companies should not forget the very important stakeholder group within the firm that has a tremendous impact on the business: the firm’s employees. As Savitz (2014, 29) argues, companies that invest in employee engagement do not only enjoy higher morale and productivity, but they also actually achieve better profitability. Furthermore, employees are in a critical role if the company wishes to create sustainable value. At the end of the day, these individuals inside the company must also see clear benefits from the sustainability initiative. Otherwise the project will lack engagement, which naturally affects

its execution. (Laszlo & Zhexembayeva 2011, 159.) Lastly, the people in the company also have firsthand experience on how well the firm is actually performing in terms of its sustainability, thus making them a powerful stakeholder group that ultimately confirms whether the company is walking the talk (Savitz 2014, 69).

With stakeholders, companies should also acknowledge the different impacts concerning their business operations. According to Savitz (2014), as we are moving towards the *Age of Sustainability*, companies are increasingly being held responsible for a wider range of

different activities and impacts beyond financial ones. In today's world, companies are not only responsible for their own activities, but also for the activities of the stakeholders who are, in one way or another, somehow involved with the company. (Savitz 2014, 6.) That is to say, companies should not be only occupied by their own performance: they are also held responsible for the parties in their value chain, such as warehouses, shipping companies, manufactures, and wholesalers, who all act on behalf the company (Savitz 2014, 28). As Kert Davies, the director of research at Greenpeace, points out in Savitz's book *The triple bottom line* (2011, 61), the weakest links in companies' value chains are the ones that are attacked.

In terms of sustainability ROI, measuring the impacts is essential for two reasons: first of all, any activity as such is not a sufficient measure of the results (Phillips & Phillips 2011, 31). Instead, the business impact arising from the activity is an object that needs to be identified and measured. This then helps establish a monetary value for the sustainability initiative as well. (Phillips & Phillips 2011, 144.) Furthermore, many projects are initiated in order to improve business. Therefore, being able to demonstrate the achieved results is critical. (Phillips & Phillips 2011, 137.) In fact, according to Phillips & Phillips (2011), the impact data is the most critical form of data for executives. That is to say, although ROI calculations are essential, executives' willingness to invest in sustainability initiatives is also swayed by the possible intangible benefits that lie in the project's desired impacts. (Phillips & Phillips 2011, 28.) These different impacts, in turn, can be divided into two categories: market or non-market, of which the market impact refers to the benefits gained by the company and the non-market to the benefits gained by the society (Epstein & Rejc Buhovac 2014, 145)(see

the tables 10 & 11, pages 41-42). However, in terms of improved CSR, many of the generated impacts – and the data on it – lie outside the company boundaries (Laszlo & Zhexembayeva 2011, 157).

All in all, measuring sustainability ROI is highly linked to comprehending the broad set of various internal and external impacts caused by corporate activities, as well as understanding how these impacts affect managerial decisions (Epstein & Rejc Buhovac 2014, 266). After all, all corporate decisions ultimately have an impact (Epstein & Rejc Buhovac 2014, 152). Nevertheless, even though sustainability-driven impacts should be per se positive, Esty & Winston (2006, 23) remind that not all sustainability initiatives produce win-win results. Furthermore, even if it may seem that social, environmental, and economic impacts do not have market consequences or financial effects, many externalities are, in fact, internalized and thus, they affect business operations and profitability in the long run (Epstein & Rejc Buhovac 2014, 164). However, even though sustainability initiatives can produce tangible benefits, such as revenue growth for example through price premiums or increased sales, many of the impacts may also occur in intangible form, such as through strengthened relationships with various stakeholders and improvements in corporate reputation (Esty & Winston 2006, 102-104).

**Positive market and non-market impacts**

<b>Impact area</b>	<b>Market impacts (Benefits for the company)</b>	<b>Non-market impacts (Benefits for the society)</b>
<b>Environment</b>	License to operate Improved quality Reduced energy use Reduced consumption	Conservation of ecosystem services and biodiversity
<b>Social</b>	Improved relations with regulators Improved relations with stakeholders Increased shareholder value Increased employee productivity Increased consumer awareness	Positive community impacts Product safety Increased consumer awareness Transparency Meeting the unmet needs
<b>Economical</b>	Cost reductions Cost avoidances Pricing power Increased market share Revenue growth Better access to capital Reduced operating costs Lower administrative costs Lower capital costs Stock market premiums Additional purchases by stakeholders Paying less for debt Risk premiums Reduced cycle time Lowered downtime	Jobs Economic growth Business opportunities Regional growth and development Fair salaries

Table 10: Positive market and non-market impacts (Esty & Winston 2006; Epstein & Rejc Buhovac 2014; Bell & Morse 2003; Willard 2012; Berns et al 2009; Lazlo & Zhexembayeva 2011; Phillips & Phillips 2011)

### ***Negative market and non-market impacts***

<b>Impact area</b>	<b>Market impacts (Costs for the company)</b>	<b>Non-market impacts (Costs for the society)</b>
<b>Environment</b>	Climate change: weather-related losses Raw material scarcity: increasing costs	Loss of natural resources Pollution Contribution to ozone layer depletion Deforestation Overfishing and damage of marine ecosystems Biodiversity damages Climate change Contribution to acid rain deposition Landscape damages
<b>Social</b>	Labor violations Injuries Health problems Difficulties recruiting potential hires Damage of company culture and morale	Loss of social equity Health problems
<b>Economical</b>	Regulatory compliance expenses Fines Loss of capital investors Reputation damage Loss of sales due reputation damage Diminished brand value Declined share prices and market shares Paying premium for debt financing	Loss of jobs

Table 11: Negative market and non-market impacts (Esty & Winston 2006; Epstein & Rejc Buhovac 2014; Bell & Morse 2003; Willard 2012; Berns et al 2009; Lazlo & Zhexembayeva 2011; Phillips & Phillips 2011)



## 6.4 ROI data

The data used for measuring ROI can be considered as impact data, which is typically gathered through the organization's routine reporting systems (Phillips & Phillips 2007, 46). Such data can be approached as hard or soft data, but as Phillips & Phillips (2007, 44) suggest, it is recommendable to treat hard data as tangible, and soft data as intangible. Since ROI is all about comparing the costs to the benefits, it is essential to understand how these hard and soft data items, or tangibles and intangibles, are used in the ROI equation. When it comes to the terms in use – of costs and benefits – the sustainability textbooks do not provide much information on which items should be considered as costs and which as benefits. This thesis therefore makes use of the definitions provided by the Business Dictionary (2015).

According to the Business Dictionary (2015), a cost is *"an amount that has to be paid or given up in order to get something. In business, cost is usually a monetary valuation of effort, material, resources, time and utilities consumed, risks incurred, and opportunity forgone in production and delivery of a good or service"*. (Business Dictionary 2015.) A benefit, by contrast, can be an *"advantage, privilege, right, financial reimbursement, desirable outcome or result from an action, resource, or a desirable attribute of a good or service, which a customer perceives he or she will get purchasing"* (Business Dictionary 2015). Furthermore, the term tangible benefit can be understood as a monetary gain, while intangible benefits typically refer to improvements in the case of the particular investment (Phillips & Phillips 2011). However, it is ultimately up to the decision-maker, which items are entered in ROI equation and whether they are classified as costs or benefits. All the same, the content of the ROI

equation depends on the amount of collected data in the sustainability initiative, which is why the amount of tangible and intangible data varies from one investment case to the other. This, however, may not be only a technical issue in terms of measuring sustainability ROI. Rather, the question of whether credible results can be produced through a ROI metric in the first place depends on the scope of the data. A ROI metric can produce, at its best, incredibly comprehensive data, but if the data used in ROI equation is incomplete, the metric will most properly produce data that also tells just the half of the truth.

### ***Hard data / monetary gains / tangible benefits***

According to Phillips and Phillips (2011), *"Hard data are objective and credible measures of organization's performance"* (Phillips & Phillips 2011, 102) (See the table 12, page 44). Such data is often linked to the primary measures of improvement and typically presented in the form of rational and undisputed facts: these are easy to quantify and convert to monetary values. Within organizations, these data typically include output, quality, costs, and time. However, hard data items can also include metrics for company's effectiveness, such as revenue, productivity, and profitability. (Phillips & Phillips 2011, 102-103.)

When measuring hard data items in terms of sustainability initiatives, it is important to keep in mind that improved CSR can also have a positive impact on factors such as share prices, which can be measured as tangible items. As Savitz (2014, 43) argues, indexes, such as the *Dow Jones Sustainability Index* and the *FTSE4 Good Indexes*, show that sustainability-driven companies tend to outperform compared to non-

Output	Quality	Costs	Time
Energy use	Failure rates	Energy costs	Cycle time
Units produced	Scrap	Supplies cost	Equipment downtime
Carbon emissions	Waste	Fuel costs	Overtime
Recycle volumes	Rejects	Budget variances	On-time shipments
Items assembled	Error rates	Unit costs	Time to project completion
Money collected	Rework	Costs by account	Processing time
Items sold	Shortages	Variable costs	Supervisory time
Materials consumed	Product defects	Overhead costs	Time to proficiency
New accounts generated	Deviation from standard	Project cost savings	Adherence to schedules
Forms processed	Product failures	Material costs	Repair time
Inventory turnover	Inventory adjustments	Sales expense	Efficiency
Applications processed	Incidents		Work stoppages
Tasks completed	Compliance discrepancies		Order response
Output per hour	Agency fines		Late reporting
Productivity			Lost-time days
Work backlog			
Shipments			

Table 12: Examples of hard data (Phillips &amp; Phillips 2011, 103)

sustainable ones while generating higher stock profits. Savitz (2014), however, points out that, although the outperforming phenomenon cannot be directly contributed to the companies' high engagement with sustainability, if a similar trend continues year after year, *"the correlation implies causation"* (Savitz 2014, 44).

### ***Soft data/ non-monetary benefits/ intangible benefits***

Soft data are qualitative measures (see the table 12, page 45), which are less objective compared to performance measures and oftentimes

behavior related (Phillips & Phillips 2011, 104), such as attitude, motivation, and satisfaction (Phillips & Phillips 2007, 44). Companies may put great emphasis on their soft data, but these measures are seldom included in ROI equations because of their subjectivity (Phillips & Phillips 2011, 104).

Nevertheless, as Phillips & Phillips (2007, 44) argue, making a strict distinction between hard and soft data is not necessarily the best approach. Rather, these different forms of data should be considered as either tangible or intangible values. The most common intangibles according to Phillips & Phillips (2011, 192) include items



Work habits	Initiative / Innovation	Customer service	Employee development / advancement	Work climate / Satisfaction	Image
Excessive socialization	Creativity	Customer complaints	Promotions	Grievances	Brand
Wasteful activities	Innovation	Customer satisfaction	Capability	Discrimination charges	awareness
Visits to dispensary	New ideas	Customer dissatisfaction	Intellectual capital	Employee complaints	Reputation
Violations of rules	Suggestions	Customer impressions	Requests for transfer	Job satisfaction	Leadership
Communication breakdowns	New products and services	Customer loyalty	Performance appraisal ratings	Organization commitment	Social responsibility
	Trademarks	Customer retention	Readiness	Employee engagement	Environmental friendliness
	Copyrights and patents	Lost customers	Networking	Employee loyalty	Social consciousness
	Process improvements			Intent to leave	External awards
	Partnerships/ alliances				

Table 13: Table: Examples of Soft Data (Phillips &amp; Phillips 2011, 105)

such as corporate social responsibility, human life, image, environmental consciousness, intellectual capital, innovation and creativity, leadership, sustainability, engagement, team effectiveness, loyalty, and reputation, to name a few. In other words, intangibles are non-monetary assets, which are oftentimes presented alongside the determined investment ROI (Phillips & Phillips 2011, 211). Even though it's been said that *"all roads lead to hard data"* (Phillips & Phillips 2011, 104) – meaning that all measures can be converted to monetary values – in some cases though, the conversion may not be recommended for intangibles. This is usually the case when the conversion takes up too many resources or the conversion process is not credible. (Phillips & Phillips 2013, 43.) It is also likely that measuring intangibles benefits in an exactly precise way is impossible (Esty &

Winston 2006, 137).

According to Phillips & Phillips (2011) every project generates intangible measures regardless of its nature, scope, or content. The real challenge is, on the contrary, to identify and report them as effectively and appropriately as possible. Due to this, intangibles are typically considered by companies as items that cannot be measured. (Phillips & Phillips 2011, 193.) Nevertheless, as Phillips & Phillips (2011, 193) point out, despite the fact that intangibles are hard to count, examine or defined in quantities, it does not mean that they cannot be measured. In fact, Phillips & Phillips (2011) argue that *"a quantitative value can be assigned to or developed for any intangible"* (Phillips & Phillips 2011, 193). As an example, Phillips & Phillips (2011, 193) give human intelligence:

even though it is complex and abstract, most people accept IQ-scores as accurate measures. Also, intangibles such as customer complaints and conflicts can be measured. Therefore, the challenge for intangibles is rather about developing an instrument that allows for measuring them. (Phillips & Phillips 2011, 194.)

According to Phillips & Phillips (2011), there are three types of instruments for measuring intangibles. The first instrument is a five- or ten-point scale, which enables measuring respondents' perceptions in terms of the examined intangible. This method is suitable especially for the evaluation of intangibles like reputation. The second instrument, in turn, aims to find a tangible reference point for the intangible item in order to allow for its measurement through a correlation analysis. This method typically requires a detailed analysis for it to prove that a causal relationship exists between the intangible and tangible reference points. Lastly, the third instrument for measuring intangibles is an index. (Phillips & Phillips 2011, 194-195.) Phillips & Phillips (2011) describe an index as *"a single score representing some complex factor that is constructed by aggregating the values of several different measures"* (Phillips & Phillips 2011, 195). Such indexes can be used for measuring both hard data and soft data items. An index may be useful for example when examining the performance of a business unit, or when measuring an intangible item such as customer satisfaction. (Phillips & Phillips 2011, 195.)

Regardless of the hard-to-measure nature of intangibles, these assets sometimes produce the greatest value for companies (Esty & Winston 2006, 150). Even in cases where the sustainability initiative results in negative ROI, the intangibles can still generate a positive payoff (Phillips & Phillips 2011, 56). Furthermore, as

Phillips & Phillips (2011, 193) argue, only up to 15% of the total value of a contemporary organization is tied up in tangible assets, such as buildings and equipment, while the rest of the firm value lies in intangibles. It is difficult to disagree that intangible benefits, such as a good company reputation, increased customer goodwill, or the value of being considered a leader in your industry – as listed by Savitz (2014, 50) – would not be extremely valuable to the company regardless the achieved ROI.

### ***External impacts***

The most challenging part of measuring the return on investment for sustainability initiatives is probably identifying the external impacts: the costs and benefits that lie outside the corporate boundaries. The capital investment decision-making process seldom takes into consideration the company's impact on the greater public good, since companies typically lack recognition of the meaning of such impacts (Epstein & Rejc Buhovac 2014, 156). And even if the created positive environmental or societal impact outside the corporate boundaries is recognized, it is typically only considered a co-benefit (Willard 2012, 30).

Nevertheless, in order to conduct a business, companies must consume different resources, oftentimes referred to as capitals (Savitz 2014, 4-5). Even though economic capital is typically the most established form of capital within companies, sustainable development emphasizes that decision-making should also take into account the exploitation of other forms of capital, such as natural and social capital (Figge & Hahn 2005, 47). The consumption of natural capital in particular has been on the agenda lately, due to the classification of *ecosystem services*

(Sukhdev et al. 2014), a dividend of natural capital (United Nations 2008, 6) supported by the United Nations Environment Programme (United Nations Environment Programme) and the Millennium Ecosystem Assessment (Sukhdev et al. 2014, 4). The concept of ecosystem services can also be understood as non-tradable public benefits (De Groot et al. 2012, 50) whose objective is to address the role of nature in decision-making. This has, up to today, remained commonly unrecognized (Sukhdev et al. 2014, 4). According to Sukhdev et al. (2014, 5), while the concept strives to align business actions with nature conservation, it also emphasizes the companies' need for better comprehension of their dependencies and impacts on ecosystem services.

Nevertheless, the opinions on whether nature's services should be given a monetary value still vary. Sukhdev et al. (2014, 5) argue that, because of the challenging nature of working across the different biodiversity layers, geopolitical scales, value-articulating institutions, and the valuation perspectives, the concept of 'the economics of ecosystems' does not aim to give ecosystem services any aggregate number. Furthermore, Sukhdev et al. (2014, 7) claim that reducing nature to a single metric, such as the monetary one, is a dangerous premise due to nature's intrinsic and existent values, and the uncertainty related to the supply of ecosystem services in the future. The authors have also considered as a threat the possible commodification and marketization enabled by nature's financialization (Sukhdev et al. 2014, 8). Regardless, Sukhdev et al. (2014) also affirm that it is possible to approach ecosystems services through a monetary approach, although they argue that placing a value on ecosystem services is not the same as putting a price on nature. In addition, they recognize the power and role of ecosystems'

economic valuation in decision-making, as well as the importance of being able to communicate these issues to decision-makers in financial terms. (Sukhdev et al. 2014, 7-8.) Lastly, Sukhdev et al. (2014) emphasize that *"corporations must be responsible for discovering, measuring, and managing their negative externalities down to the levels that are acceptable to stakeholders, not just shareholders"* (Sukhdev et al. 2014, 11) instead of trying to find the solution from different models of ownership for corporations, changes in finance, advertising, or taxation.

In order to address the degradation of ecosystems and the loss of biodiversity in corporate decision-making, De Groot et al. (2012, 50-51) have suggested an approach that integrates the consumption of ecosystem services into decision-making. *The TEEB Valuation Database*, composed by Van der Ploeg & De Groot (2010), currently provides data on 1317 ecosystems, their services, and their monetary values. The database utilizes various valuation methods, such as avoided cost, contingent valuation, direct marketing pricing, benefit transfer, and mitigation and restoration cost, to derive an estimation for the monetary value of the listed ecosystem services. The database covers a wide range of different ecosystem services from all over the world, such as services provided by mangroves, tropical forests, Denmark's wetlands, and Sweden's coastal estuaries. These values can then be utilized to measure ecosystem services related external costs and benefits. (Van der Ploeg & De Groot 2010.) However, as De Groot et al. (2012, 57) point out, the purpose of expressing the value of ecosystem services is not to suggest that ecosystem services should be considered as private goods. Rather, the aim of the exercise is to express their estimated monetary value to society, which will either be lost if they are

damaged, or gained if they are restored. In addition, De Groot et al. (2012, 57) emphasize the valuation of ecosystem services as a complementary step to conventional decision-making. De Groot et al. (2012) acknowledge the debate on valuing 'priceless' nature and placing a monetary value on non-substitutable items. However, De Groot et al. (2012, 57) also argue that the daily decision-making by governments, businesses, and consumers seldom sets a price on nature's goods: on the contrary, these values are oftentimes considered close to zero, although ultimately we all pay the price for their loss. As De Groot et al. (2012) summarize:

*"Values in monetary units will never in themselves provide easy answers to difficult decisions, and they should always be seen as additional information, complementing quantitative and qualitative assessments, to help decision makers by giving estimations of the value of ecosystem services involved in the trade-off analysis. (...) Better knowledge about the monetary value of ecosystem services communicates important information to complement quantitative and qualitative insights and can help to make the positive and negative externalities of changes in ecosystems visible and eventually internalize at least part of their true economic and social importance in decision-making, economic accounting and policy response"* (De Groot et al. 2012, 60).

All in all, giving an economic value to intangibles or greater public goods, such as clean air, is extremely difficult (Bell & Morse 2003, 16) and so, quantifying social sustainability is considered challenging as well (McKenzie 2004, 9). Identifying and measuring the firm's created impact on a broader scope is, however, recommendable, since it increases the understanding on many critical issues, which

either hinder or enhance the company's CSR and financial performance (Epstein & Rejc Buhovac 2014, 261). Moreover, by investing in natural capital, companies are protecting and restoring ecosystems that are vital for sustaining societal and business needs (Willard 2012, 18). As Laszlo & Zhexembayeva (2011) conclude, those companies, which are able to create value for the environment and society without trade-offs, end up creating greater value for their stakeholders too. (Laszlo & Zhexembayeva 2011, 2.)

### **6.5 Converting impact data into money**

Money is said by Phillips & Phillips (2011, 175) to be the ultimate normalizer, since it places different types of measures on an equal footing, thus allowing for effective comparisons. Phillips & Phillips (2011, 176) also add that, while monetary value is increasingly becoming one of the key benchmarks for success in all kinds of projects, being able to measure the project's success through business impact data is also essential. For example, many business sponsors want to see concrete evidence of improvement in tangible value. Therefore, converting impact measures to money enhances the comprehension of the meaningfulness of the impact, as it aligns the evaluation process to the budgeting process and it underscores the breadth and complexity of the impact. (Phillips & Phillips 2011, 176.) Furthermore, monetizing impacts does not only increase the management's knowledge of the different costs and benefits concerning the company's sustainability issues, but it is also considered to have a positive impact on decision-making, and thus, the long-term profitability of the firm (Epstein & Rejc Buhovac 2014, 145).

According to Phillips & Phillips (2011), converting

impact data to money consists of five different stages. Firstly, the unit measure must be defined and focus maintained throughout the process. For hard data items, the unit of measure can for example be one item produced, one package shipped, or one sale completed. Quality measures can also be measured in units, such as one ton of waste, one ton of carbon emissions, or one kilo-watt-hour of energy consumed. As the second step in the conversion method, a monetary value (V) must be given for each unit. Third, the change ( $\Delta$ ) in performance data needs to be calculated. This particular value may signify the performance improvement of an individual, team, or a group of participants directly attributable to the project. Fourth, the annual change ( $\Delta P$ ) in performance should be determined. And lastly, the annual

value of improvement needs to be calculated by multiplying the annual performance change ( $\Delta P$ ) by the unit value (V). This outcome value, which now presents the project's annual benefits, can then be compared to project costs to calculate the ROI. (Phillips & Phillips 2011, 178-179)

However, as it has been noted, the sustainability initiative may also generate intangible benefits, for which the conversion into monetary units may either consume too many resources or may not be valid and credible in the first place (Phillips & Phillips 2013, 43). To see whether the conversion is worth the effort, Phillips & Phillips (2011, 190) suggest the four-part test (see the figure 14 below), which can be utilized as a guideline for different data conversions.

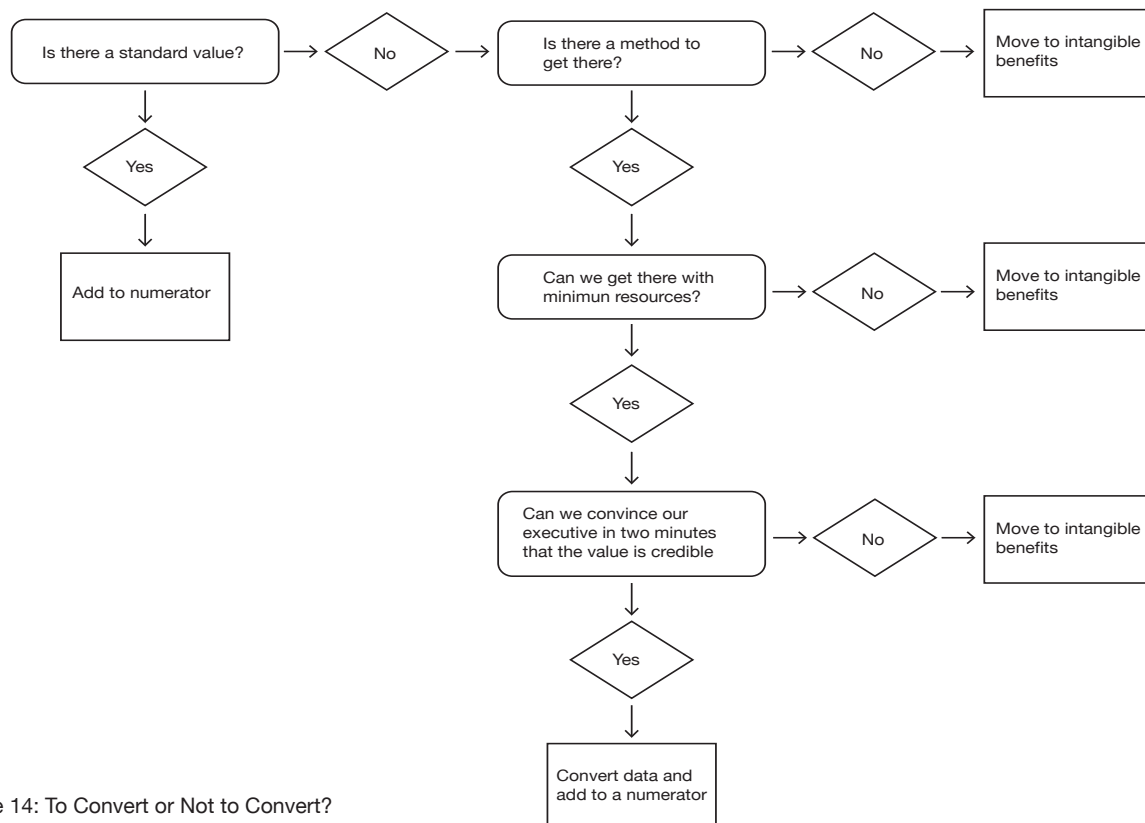


Figure 14: To Convert or Not to Convert?  
(Phillips & Phillips 2011, 190)



## 6.6 Calculating sustainability ROI

In the previous sub-chapters, the thesis has presented different sources of data, as well as the possible impacts that can be generated by business operations. These examples can be used as sources of measurable data in an ROI equation. But as Phillips & Phillips (2011, 190) suggest, the impact data should first be classified as either tangible or intangible, after which the conversion from tangible data to money becomes possible.

Each sustainability initiative may contain wildly different costs and benefits depending on its nature. Furthermore, depending on the set

measurement boundaries, sustainability ROI can be measured either rather concisely, from the traditional ROI perspective, focusing only on the internal costs and benefits for the company. Or, if there is a willingness to measure the sustainability ROI more holistically by monetizing the externalities, sustainability ROI may allow for the evaluation of the investment's profitability from a much broader benefit-cost-perspective.

The table 15 (pages 50-52) present examples of different costs and benefits, which can be used as inputs when measuring sustainability ROI from the traditional ROI perspective, in other words when focusing solely on the direct benefits to and costs for the company.

PROJECT BENEFITS		VALUE
New products / innovations	Added revenue stream	€...
	Labor cost savings	€...
	New customer base	€...
Service / leasing	Added revenue stream	€...
Sustainable brand building	Added revenue stream from improved reputation and/or brand image	€...
Increased employee productivity	Increased productivity from reduced absenteeism	€...
	Increased productivity from more telecommuting and less travelling	€...
	Increased productivity from green buildings	€...
	Increased productivity and innovation from improved collaboration	€...
	Increased productivity and innovation from higher engagement	€...

Table 15: Project ROI (Willard 2012; Phillips & Phillips 2011; Epstein & Rejc Buhovac 2014; Lazlo & Zhexembayeva 2011)

PROJECT COSTS		VALUE
Raw materials	Dematerialization: reduction of the amount of material used per product Substitution: Use of less expensive, more environmentally friendly raw materials Onsite waste recycling: scrap material reductions, reuse and recycle Product take back: reuse and recycle of the components and materials from used products Reductions of the consumption of paper and card board (billing, photocopying, marketing, reporting) <b>Total raw material costs:</b>	€...
Energy	Lighting improvements HVAC or controls improvements Behavioral improvements Supply or peak demand management Smart building technologies Onsite renewable energy Building envelope improvements <b>Total energy (kWh) consumed:</b>	€...
Waste	Cost of materials purchased but later wasted (60%): raw materialism auxiliary materials, operating materials, packaging, water Cost of processing the material before it is wasted (20%): wasted energy and labor consumed for handling the wasted material Cost of waste prevention and environmental management (10%): external waste management services Cost of end-of pipe waste treatment and disposal (10%): waste storage, haulage, disposal, insurance for environmental liabilities <b>Full cost of waste:</b>	€...
Water	Reduction the use of embodied water Decrease of the plant intake Reuse of water in a closed-loop system <b>A cubic metric (m3) of water consumed (plant intake):</b>	€...
Logistics	<b>Transport rates, import duty, transporting goods to and from factory:</b>	€...



PROJECT COSTS		VALUE
<b>Strategic risks</b> (Strategic choices to achieve business objectives)	Risk to revenue from poor reputation on energy and carbon management	€...
	Risk to revenue from poor reputation on water management	€...
	Risk to revenue from poor materials and waste management	€...
	Risk to revenue from poor supplier reputation and behaviors	€...
	Risk to revenue from poor reputation on ecosystem damages	€...
	Risk to revenue from less competitive prices	€...
	Risk to revenue from sudden disruptions in the value chain	€...
	Risk to revenue from poor reputation on human rights abuses	€...
<b>Operational risks</b> (Ineffective or inefficient business processes)	Changes in legislation: lost revenues, increased taxes and tariffs	€...
	Risk of higher cost of energy	€...
	Risk of a price on carbon	€...
	Risk of higher cost of waste	€...
	Risk of higher cost of waste and materials	€...
	Risk of higher cost of capital	€...
	Risk of higher employee voluntary turnover	€...
	Risk of lower employee productivity	€...
	Risk of cost from poor occupational health and safety	€...
	Potential decreased revenue without sustainability initiatives	€...
<b>Compliance risks</b> (Inadequate communication)	Potential increased expenses without sustainability initiatives	€...
	Risk to revenue from inadequate communication of laws and regulations, internal behavior codes and contract requirements, and information concerning failure of management, employees, or trading partners	€...
<b>Reporting risks</b> (Information systems)	Risk to revenue from poor reliability, accuracy, and timeliness of organization's information systems, including the completeness of information used in both internal and external decision-making	€...

THE PROJECT ROI	
$\text{ROI} = \frac{\text{Total benefits} - \text{Total costs}}{\text{Capital costs}} \times 100$	

Table 15: Project ROI (Willard 2012; Phillips &amp; Phillips 2011; Epstein &amp; Rejc Buhovac 2014; Lazlo &amp; Zhexembayeva 2011)

As mentioned, an interest in surveying and measuring nonmarket externalities, such as the impact on ecosystem services, may also exist in the company. According to Epstein & Rejc Buhovac (2014), the first step to measuring such external impacts is to identify the valued impact including the stakeholders for whom values will be determined. Next, the method, such as contingent valuation, travel cost, or hedonic pricing, for measuring the impact must be determined. These methods typically require data collection through surveys in order to place a WTP or WTA estimation on the measured impact. (Epstein & Rejc Buhovac 2014, 192.)

Externalities may also include impacts such as the project's greenhouse gas (GHG) emissions. It is argued by Epstein & Rejc Buhovac (2014, 134) that as emission-trading practices become more and more established, their effects on both corporate financial and sustainability performance are likely to grow as well. At the moment though, there are just few databases that can be used as basis for measuring the

social costs of GHG emissions. As Brose (2008, 15) argues, externalities such as GHG emissions are occasionally quantified in the form of tons of CO<sub>2</sub>e emitted, but seldom monetized. *The Social Cost of Carbon SCC database* (Interagency Working Group on Social Cost of Carbon 2013), however, provides one approach to incorporating the social benefits from reductions in CO<sub>2</sub> emissions to cost-benefit analyses. In short, the SCC functions as an estimate of the monetized damages of the net agricultural productivity loss, human health effects, property damage from sea level rise, and changes in ecosystem services, caused by incremental increases in carbon emissions per one metric ton of CO<sub>2</sub> emissions produced in a given year. When used by organizations as part of their regulatory actions, the social benefits of reducing CO<sub>2</sub> emissions reflect the impact of cumulative global emissions. The SCC database presents the estimate of monetized damage in three discount rates of 2.5, 3, and 5 percent. (Interagency Working Group on Social Cost of Carbon 2013, 2.) (See the table 16 below)

### Revised Social Cost of CO<sub>2</sub>, 2010 – 2050 (in 2007 dollars per metric ton of CO<sub>2</sub>)

Discount Rate Year	5.0% Avg	3.0% Avg	2.5% Avg	3.0% 95th
2010	11	32	51	89
2015	11	37	57	109
2020	12	43	64	128
2025	14	47	69	143
2030	16	52	75	159
2035	19	56	80	175
2040	21	61	86	191
2045	24	66	92	206
2050	26	71	97	220

Table 16: Social Cost of Carbon (Interagency Working Group on Social Cost of Carbon 2013, 3)

In terms of monetizing other GHG emissions, such as nitrous oxide ( $\text{N}_2\text{O}$ ), ammonia ( $\text{NH}_3$ ), sulfur dioxide ( $\text{SO}_2$ ), and methane ( $\text{CH}_4$ ), the data available provides a wide range of different monetary values. In order to monetize the impact of non- $\text{CO}_2$  GHG emissions, such as methane and nitrous oxide, similar approaches to SCC can be used (Marten & Newbold 2011). For example, Marten & Newbold (2011, 18) provide a set of social costs of marginal methane and nitrous oxide emissions that use the same discount rates to SCC. In addition, AEA Technology Environment (Holland et al. 2005) provides a set of country specific monetary values for damages caused by GHGs, which, similarly to social costs,

can be included in benefit-cost analyses.

In a world of various forms of business, caused externalities vary too. In this master's thesis, the aim is not to examine the monetization of all the diverse externalities, but rather, to provide a few key examples. The table below presents externalities, which were selected collaboratively with the case company. As mentioned in chapter 1.3, *The research process*, the case company hoped the thesis provide some economic indicators or monetary values that could help them better comprehend the costs and benefits of their external impacts. The table 17 (pages 55-56) aims to answer to that request.

## EXTERNAL COSTS AND BENEFITS

## IMPACT AREA

## MEASURED UNIT

## ECONOMIC INDICATOR

**Eutrophication: use of phosphorous (P) and nitrogen (N)**

People's willingness to pay for nature conservation

**Willingness to Pay (WTP)**

(Pretty et al. 2003; Chen et al. 2014)

People's willingness to spend money on travelling to the places with better water quality / the value of the maintained area

**Travel Cost Method (TCM)**

(Chen et al. 2014)

People's willingness to pay in order to reduce eutrophication

**Contingent Valuation (CV)**

(Chen et al. 2014)

The cost of replacing the destroyed ecosystem with a man-made alternative

**Replacement Cost Method (RCM)**

(Chen et al. 2014)

People's willingness to invest in recreational opportunities through property purchases

**Hedonic Property Pricing for unbuilt slots**

(Artell 2014)

**Climate change: GHG emissions**

CO<sub>2</sub> emissions

One metric ton of CO<sub>2</sub> emissions produced / year

**Social Cost of Carbon (SCC)**

(Interagency Working Group on Social Cost of Carbon 2013)

N<sub>2</sub>O emissions

Social cost of marginal N<sub>2</sub>O emissions per ton

**Social Cost of Nitrous Oxide**

(Marten & Newbold 2011)

CH<sub>4</sub> emissions

Social cost of marginal CH<sub>4</sub> emissions per ton

**Social Cost of Methane**

(Marten & Newbold 2011)

NH<sub>3</sub> emissions

Marginal damages in 2010 from ozone effects on crops arising per ton emission for NH<sub>3</sub>

**AEA Technology Environment**

(Holland et al. 2005)

IMPACT AREA	MEASURED UNIT	ECONOMIC INDICATOR
<b>Climate change: GHG emissions</b>	SO <sub>2</sub> emissions Marginal damages in 2010 from ozone effects on crops arising per ton emission for SO <sub>2</sub>	<b>AEA Technology Environment</b> (Holland et al. 2005)
	NOx emissions Marginal damages in 2010 from ozone effects on crops arising per ton emission for NOx	<b>AEA Technology Environment</b> (Holland et al. 2005)
<b>Biodiversity damages / protection</b>	Area of ecosystem converted	<b>The TEEB Valuation Database</b> (Van der Ploeg & De Groot 2010)
<b>Ecosystem services</b>	Area of ecosystem converted	<b>The TEEB Valuation Database</b> (Van der Ploeg & De Groot 2010)
	Public's willingness to pay to avoid the damage	<b>Damage costing</b> (Epstein & Rejc Buhovac 2014)
<b>Regional growth and development</b>	Number of local jobs created	<b>A public information study</b> (Weisbrod & Weisbrod 1997)
	Business output / sales volumes	
	Added value / Gross Regional Product	<b>The economic portion of a formal "environmental impact assessment"</b> (Weisbrod & Weisbrod 1997)
	Wealth (property values) Personal income (wages)	
		<b>A benefit-cost analysis: the net economic benefit to the area versus the net cost</b> (Weisbrod & Weisbrod 1997)
<b>Product transparency</b>	Performance in transparency of labeling, as determined by outside rating agencies (Werbach 2009)	-

Table 17: External costs and benefits (Social Cost of Carbon (SCC), Interagency Working Group on Social Cost of Carbon 2013; The TEEB Valuation Database, Van der Ploeg & De Groot 2010; Artell 2014; AEA Technology Environment, Holland et al. 2005; NCEE National Center for Environmental Economics, Marten & Newbold 2011; Pretty et al. 2003; Chen et al. 2014; Weisbrod & Weisbrod 1997; Epstein & Rejc Buhovac 2014; Werbach 2009)

### 6.7 Payback period

The payback period is the time within which the net profits are equal to the amount of the investment (Kinnunen et al 2006, 107). Therefore it is also called the break-even analysis (Phillips & Phillips 2011, 212). Calculating the payback period is somewhat simple (see the equation below), which is why the method is applied broadly (Kinnunen et al. 2006, 107).

$$\text{Payback period} = \frac{\text{Project costs}}{\text{Annual project benefits}}$$

However, according to Kinnunen et al. (2006), the payback period is criticized for not taking into account the interest at all. This is not necessarily a real problem though, as the method puts more weight on the investment's first year profits. Thereby, the interest does not have a large effect on the investment. However, this on the other hand poses a new problem: the impacts after the first year period become less important for accounting, which in turn may lead to a situation where, in terms of the investment decision-making, the alternative with the shortest payback period is chosen while the long-term profit creation is not evaluated at all. (Kinnunen et al. 2006, 108.)

According to Masdorf (2010), most investments are evaluated based on their payback period, and the typical payback period for today's companies is 3 years or less. Masdorf (2010) also claims that the payback period for the most common of sustainability initiatives, like investments in high efficiency lighting, is usually between 2 and 4 years, while for bigger investments, such as building green buildings, the payback period may be between 7 to 20 years. Nevertheless,

according to Masdorf (2010), sustainability investments are often executed for strategic reasons rather than financial ones. Masdorf (2010) also argues that the challenging nature of measuring ROI for sustainability investments may hinder their position among other investments. Therefore Masdorf (2010) does not consider it recommendable to measure sustainability investments purely based on the ROI or the payback period, although he does point out that the ability to justify a sustainability initiative based on a prominent ROI is still a valid approach.

## 7. Summary of theoretical framework

The purpose of the theoretical framework in this thesis has been to clarify the thesis topic of sustainability ROI by examining sustainability's role in today's business realm. The subject matter has been approached through several aspects of business practices, including the barriers and motivations to pursue sustainability advantage, the current best practices for measuring CSR, and the common frameworks of sustainability investments. Finally, the theoretical framework focused on ROI as a standard business metric by examining its applicability in terms of sustainability investments. In this chapter, the thesis discussed the different factors affecting the measurement of sustainability ROI, such as stakeholders and various impacts. Furthermore, the nature of different data and the possibilities to monetize them, was discussed as part of the broader objective, measuring sustainability ROI.

In the beginning of the theoretical framework, the following four research questions were presented:

- 1) *What kind of quantitative methods are there for measuring corporate social responsibility (CSR)?*
- 2) *How can ROI be measured for sustainability?*
- 3) *How are sustainability investment decisions carried out in the case company?*
- 4) *Could measuring sustainability ROI improve investment decision-making in the case company?*

The objective of the theoretical framework was to answer the first of the two research questions 1) *what kind of quantitative methods are there for measuring corporate social responsibility (CSR)?* and 2) *how can ROI be measured for sustainability?* The first research question was addressed in chapter 5, *Best practices for measuring and monetizing CSR*,

which benchmarked some best practices for CSR measurement. The selection of these best practices was mainly based on how they could be used to communicate about results in economic terms. The second research question was answered in chapter 6, *Measuring return on investment (ROI)*, which presented a step-by-step introduction to the concept of sustainability ROI.

Next, the thesis will move on to its second part, the case study, for which the aim is to address the remaining two research questions concerning sustainability-related decision-making and the possible utilization of sustainability ROI as a method for producing meaningful data for decision-makers of the case company. Lastly, the thesis will provide as a solution proposal a platform for measuring sustainability ROI in the case company, which in turn may serve as the initial step for more comprehensive investment impact evaluations in the future.





*Part III* | *Case Study*





### ***III. Case study***

To examine the thesis topic of sustainability ROI in a real-life business context, this thesis will in its second part, approach a case study through qualitative research on how sustainability-related investment decisions are currently made, how they should be made in the future, and whether sustainability ROI measurement could enhance the decision-making in the case company. The

objective of the case study is in particular to address the remaining two research questions:

- 3) How are sustainability investment decisions carried out in the case company?*
- 4) Could measuring sustainability ROI improve investment decision-making in the case company?*

## 8. Methodology and data collection

The thesis uses qualitative research to address the research questions 3 and 4. The first part of the thesis – the theoretical framework – presented a literature review in order to construct a baseline for measuring sustainability ROI. In this second, case study part, the thesis will focus on examining the role of sustainability in decision-making in the case company. The research methodology used in this part is theme interview, which serves to provide a review of and insight into the formal investment processes that lead to sustainability-related decisions in the case company. Furthermore, the aim of this part is to increase understanding on how sustainability should be integrated into decision-making and whether measuring sustainability ROI could enhance investment decision-making further by providing meaningful data on the different investment costs and benefits of sustainability.

### 8.1 Impact model as framework for theme interview

In the beginning of this qualitative research, an impact model (Cf. Appendix B) of the case company's operations was created to outline a framework for the theme interviews. The aim of the model was to function so that it would emphasize both the positive and negative impacts, caused directly by the case company or by their primary suppliers and stakeholders. The model divided the case company's value chain into four parts: 1) raw material harvesting, 2) industrial food production, 3) distribution, packaging, and retail, and 4) product use and disposal. While making use of the impact model, the theme interviews aimed to increase understanding on which impacts are essential in measuring sustainability ROI and which impacts, on the other hand, should be excluded from such calculations.

The impact model includes elements from the three areas of sustainability: environmental impacts, social impacts, and economical impacts. All of the impacts were categorized into two groups, positive and negative, and linked to the corresponding sections of the case company's value chain. The impact model took into account only the impacts resulting from the case company's activities and the value chain's primary suppliers and stakeholders, such as end-users and farmers.

The idea for the impact model was partly adopted from the authors referred to in the theoretical framework. According to Sukhdev et al. (2014), "*identifying which ecosystem services are most important to your problem*" (Sukhdev et al. 2014, 10) is essential. In addition, authors like Figge & Hahn (2005) emphasize that taking into account the choice of different forms of capital, including "*those forms of capital that are most critical to the sustainability performance of a company*," (Figge & Hahn 2005, 52) is important. Furthermore, authors such as Phillips & Phillips (2007, 84) and Epstein & Rejc Buhovac (2014, 266) have all underlined the role of impact recognition as a baseline for ROI measurement.

Throughout the theme interviews, the interviewees, who are all employees of the case company, had the possibility of using the impact model developed for the company's business operations. The impact model was handed to the interviewees in the beginning of the process with an explanation of its role within the last interview theme. Even though only a few of the interviewees had the chance to take a closer look at the impact model in the beginning of their interviews, it is possible that seeing the model still had an effect on their answers. Neither the impact model nor the interview questions were sent to the interviewees beforehand, since it was

important to make sure they could not plan or edit their answers in advance. Eliciting a genuine response to the impact model and the interview questions was considered essential for honest feedback. Each of the interviewees, however, were already aware of the topic, as this was introduced to them before the interviews.

## 8.2 Theme interviews

Altogether eight case company expert employees were interviewed during the time period of April-May 2015. The interviews were held at the case company's headquarter and the duration of each interview was approximately one hour. The group of interviewees consisted of managers and directors from the case company's business and processes development, R&D, financial management, production, communications, procurement, sales, and technical management. Each of the interviewees was selected based on their position in the case company, and everyone taking part was assumed to have a link to the case company's CSR.

The theme interview were selected as the qualitative research method due to its ability to accommodate the use of the semi-structured interview technique, while still keeping the focus within the pre-defined research areas (Tuomi & Sarajärvi 2009, 75). The structure of the interviews consisted of 19 questions (Cf. Appendix A), all of which were fleshed out with additional questions where necessary. As the objective was to address the research questions 3 and 4 of the thesis, the interview questions were divided into three main themes (Cf. Appendix A). The purpose of the first two themes was to find answers to the third research question, *how are sustainability investment decisions carried out in the case company?* The first theme

of the interviews focused on understanding how sustainability issues were linked to the interviewees' daily work, how the interviewees perceived the actualization of sustainability within the company, and how each of them was involved in the case company's decision-making. The second theme of sustainability investment criteria focused on gathering data on the framework with which sustainability initiatives and investments were currently managed in the case company. In this section, questions related to sustainability investment criteria, used data, and challenges as well as opportunities for these two, were studied.

The third and the last theme, sustainability ROI, aimed to examine the relevance of the sustainability ROI metric for the case company by addressing the last research question of *could sustainability ROI measurement improve investment decision-making in the case company?* For this purpose, each interviewee was given time to examine the impact model (Cf. Appendix B). Next, based on the impact model, the interviewees were asked a series of questions on the possible uses of the sustainability ROI metric, as well as its credibility. All the interviews were recorded and transcribed.

## 8.3 Analysis of the theme interview content

The qualitative research used as its framework the case company and their internal investment decision-making. The interviews were analyzed using content analysis, which followed the guidelines of Tuomi & Sarajärvi (2009): the key observations in the answers for each interview question were collected into tables, which in turn allowed for clustering the data, making simplifications, and finding similarities among



the content. However, as the interview content contained polyphonic features, disparities between the answers were taken into account since they reflect the way in which the different employees approach sustainability on day-to-day-basis in the case company. Furthermore, as Tuomi & Sarajärvi (2009, 85) argue, the purpose of qualitative research is not to make statistical generalizations, but rather to allow for illustrating a certain phenomena or event. Therefore, the theme interviews never pursued reaching a saturation point. Rather, the purpose was to gather enough data for describing the environment in which the sustainability-related decisions were currently made in the firm, while also studying what the ideal decision-making framework could be from a sustainability perspective. Furthermore, the objective was to understand whether sustainability ROI could be considered as an applicable tool for investment impact evaluations that are more holistic, and whether such data was considered important to begin with.

#### **8.4 Use of citations**

The transcribed interview data is confidential and has been stored appropriately. In order to use citations, each of the interviewees has been given a number in this text from one to eight referring to their data unit. This number is also used as an identifier at the end of each citation to conceal the interviewees' identity. Furthermore, the use of long citations has been avoided to minimize the possibility of anyone recognizing the informant.

Citations are used to indicate the baseline for the made conclusions. All the interviewees were held in Finnish and translated to English afterwards, which may have affected the interviewees'

sentence structure. However, in order to avoid any distortion to the data content, the translation of the citations has been implemented word for word. If the citation has included irrelevant data or content classified as secret, the thesis has used the sign (...) to mark the points where content has been retracted. In terms of any other clarifications, the citations make use of brackets to clarify the information.

## 9. Case company

The case company of this thesis is the Finnish food producer Raisio Nutrition, whose history goes back all the way to year 1939, when Finnish wheat farmers founded the Oy Vehnä Ab mill. During its first ten years, the mill grinded the wheat grown by its stakeholders. Yet already in 1948 the business expanded to produce animal feed from the milling's by-products. In 1987, Vehnä merged with an oil milling plant called Oy Kasviöljy-Växtölje Ab, and the new business was named Raisio Tehtaat Oy Ab. In 2005 the company was renamed Raisio Group plc. (Raisio, Historia.)

Today Raisio employs some 1900 people, operates in nine countries (Raisio Group) and has its own production in place in four countries: Finland, the United Kingdom, Poland, and the Czech Republic (Raisio). The company's shares are listed on NASDAQ OMX Helsinki Ltd and all in all Raisio has over 35 000 shareholders (Raisio Group). To Finnish consumers, the company is known for its various iconic brands. But the company has also been a real forerunner in the field of sustainability. In 2008, Raisio launched as the first company in the world both water and carbon footprint labels for its consumer products. Now, seven years later, over 20 of Raisio's products bear this carbon footprint label. The footprint calculation method, as well as the label itself, has also been adopted by other brands. (Raisio.) Establishing the carbon and water footprint labels has been possible for Raisio due to their long and fruitful collaboration with farmers, who have kindly provided the data for the firm's footprint calculations. Overall, the close collaboration with farmers has played an essential role inside Raisio. Currently, Raisio has 2500 contract farmers in Finland with whom the firm works closely to grow high-quality crops while reducing the environmental impact of farming (Raisio). In 2013, Raisioagro

also launched an innovative competition by the name Huippufarmari haussa, wherein entrants competed on growing the biggest crop while minimizing their environmental impact. Altogether nine farmers from around Finland participated in the competition, and achieved significant results. Since 2013 Raisio has continued to motivate their contract farmers to achieve better crop yields while simultaneously adopting more sustainable farming methods. (Raisioagro.)

### ***9.1 Environmental management within the case company***

In the beginning of the theme interviews, the interviewees were asked what they think sustainability means to the company. The purpose of this question was to increase comprehension on how visible sustainability is in each of the interviewees' work beside the company's public statement: having ISO 9001 and ISO 14001 certificates in all their Finnish operations, the production facilities certificated with the international food quality and safety standard BRC Global Standard for Food Safety, the use of non-GMO soy, and the commitment to start using only certificated palm oil during the year 2015. While one interviewee considered the question difficult, the other interviewees easily linked various aspects of sustainability to the company's operations: the use of natural and responsibly produced ingredients, taking holistically into account in different solutions the company's impact on nature's resources, production processes that aim to minimize the firm's burden on the environment, utilization of production side products, input minimization, and the minimization of energy consumption. Furthermore, sustainability was seen to be implemented in product safety, packaging choices, responsible purchases, measuring

carbon footprints, logistical improvements, making ethical business, image creation, and producing less waste while making profit. All in all, sustainability was cited as being part of the company's strategy and its role was considered increasingly important. Despite the fact that sustainability was argued to be important especially from the perspective of company's public image, it was not considered to be a main driver for the business. In fact, it was argued that the main task of all companies is, at the end of the day, to pursue growth and profitability for the shareholders. Some interviewees emphasized, however, that sustainability should be part of everyday operations and, moreover, that it should drive decision-making.

Sustainability played a very different role in each of the interviewees' work depending on their area of responsibility within the company. While two interviewees said that sustainability did not have a significant role in their daily work, for the rest of the interviewees the company's sustainability initiatives were much more visible. Many of the interviewees worked with issues related to product ingredients, such as the use of palm oil, and mentioned traceability, awareness, supplier code of conducts, product quality, purchase of palm oil certificates, and access to critical data among their product-related sustainability tasks. Those interviewees who worked closely with the company's sustainability issues also named corporate responsibility reporting, measurement of sustainability performance, and development of new methods for decreasing the environmental stress caused by the firm as their main tasks.

## **9.2 Sustainability in decision-making**

According to the interviewees, no decisions in the

case company were thus far made based purely on sustainability. However, sustainability was considered to be an aspect, which often becomes part of a broader investment evaluation. As one interviewee argued, sustainability only plays a minimal role in today's business, mainly serving to create positive brand images.

*"Sustainability does not have such a strong role. We want to create positive brand images by using pure ingredients that are produced nearby. And that is linked with sustainability. But beside that, sustainability is rather planted in our processes. It is not a separate angle. (...) We do not consider the dimensions of sustainability in new product launches. As we use oat, sustainability is rather built-in. You can always mention that. But it is not an issue, which would be thought holistically in product launches". (3)*

The most common decisions made in terms of sustainability were related to ingredient suppliers and risk management, raw material requirements, packaging materials, production efficiency, and waste. Some interviewees were also responsible for decisions related to the company's role in different development projects and the purchase of palm oil certificates. One of the interviewees noted that, even though he personally did not make the final decisions within the company, he contributed to the firm's broader decision-making by assisting upper management in sustainability related decisions by providing them with information and opinions concerning various issues. Overall, the upper management was seen to have the most power in decision-making and their support was named as an important factor in terms of establishing new sustainability initiatives and implementing them. Furthermore, the company's strategy and guidelines in general were followed. But as one of the interviewees underlined, ultimately the

whole organization participated in the decision-making. According to the interviewee, *“We aim to solve these issues together, not alone”*. (8)

The stakeholders' role in decision-making was very clear. The clients and customers were considered as the key stakeholders, whose preferences and requirements mattered the most. In addition, certain NGO's, the local municipality and citizens were mentioned. One interviewee also named the water systems and land areas as external stakeholders that have been taken into account. The most common ways to identify emerging stakeholder needs in terms of sustainability were listed as consumer research, active dialogue, collaborative meetings with different actors, and keeping an eye on foreign media. It was also mentioned that the emerging stakeholder needs were identified accordingly to the company's policy, which supported employees bringing forth their personal observations regarding any emerging stakeholder needs inside the company. These observations were then further evaluated separately in each business unit.

It was believed that the company evaluated the impacts of their business operations on a broad scope, yet it was not known how broadly such evaluations were made. Nevertheless, the company was argued to use methods such as consumer surveys, water consumption metrics, carbon footprint metrics, and environmental impact evaluations, including the measurement of generated noise and smell. As an opposite viewpoint, one interviewee claimed that that the case company did not evaluate its created impacts at all. Nevertheless, many interviewees experienced that in terms of broader sustainability-related impact evaluations, the most important thing was to focus on goal-oriented action with a few concrete examples.

*“The more increasingly the value is put on the content of doing. (...) The intrinsic value should not be the amount of different projects, but rather the purpose of what is being done. (...) If you think about how people are indentured to doing, it happens by giving them clear objectives. After all, we all have limited resources, which is why they should be used for purposeful projects that are relevant for our business”*. (7)

The interviewees were also asked about the exploitation of various forms of capital, such as natural and social capital, and how these were taken into account in the company's decision-making. While some interviewees thought that besides the company's own financial assets, no other capitals were taken into account due to the lack of applicable metrics, differing opinions were also brought up. It was argued that at least in terms of natural capital, the company thought of its consumption in quite broad terms, and thus, did factor it in when making decisions. Furthermore, it was mentioned that, when making investments, the impact on the surrounding environment was taken into account. The company employees' mental assets were additionally considered valuable due to their importance to the business. Overall, an interest in evaluating the consumption of different capitals came through in the interviews. It was acknowledged that, even though at the moment there were no goals or metrics to evaluate the consumption of different capitals, if these things were to be reported and measured someday, they would receive more attention.

*“We do not have metrics, which would allow us to take into account these different capitals. But personally, since I started working with sustainability issues in the company, I have tried to study and think about how we could value our water consumption, waste water emissions*

*and how they affect the receiving water system's value and capital. Or how a sustainability investment would affect our employees' mental assets. So far I have not found a way to value such impacts and how they could be taken into account. (...) How could we value for example biodiversity? What kind of monetary value or index could be given to it, which would allow us to evaluate the resulting change from our actions?" (1)*

The challenges related to sustainability initiatives or investments were also discussed in the interviews. In fact, in terms of decision-making, this was perhaps the most critical of the topics. It seemed to influence in many ways the possibilities of approaching sustainability from the business perspective. In general, decisions in which sustainability was combined with cost-neutrality were considered the easiest. In a situation of choosing between different alternatives – which is also one of the most common investment decision-making situations acknowledged by Kinnunen et al. (2006, 106) –, the possibility of contributing something good to society was considered important, especially if the sustainable alternative did not come with a premium on price. Overall, financials were named as the strongest determinant in decision-making: cost-efficiency and savings were emphasized as the most overruling factors in any project, thus leaving sustainability in the weaker role. The greatest challenge in terms of sustainability was considered to be the lack of ability to present its generated benefits in numbers, including the impact on the greater public good.

*"Calculating the benefits is the challenge. If we made an investment purely based on sustainability – let's speculate here – it would be extremely difficult to calculate the benefit. And this is related to this ROI approach. That is*

*the challenge. Another challenge would also be that if there are no concrete measurable benefits within the quarter year economy, we could end up with a situation where the investment is not made because it does not give anything to us within the next year". (3).*

The challenge of quantifying, in euros, the benefits generated by sustainability initiatives was strongly emphasized, even though at the same time it was acknowledged that sustainability could boost sales, decrease costs, and increase the value of the company or its brands. Nevertheless, sustainability was also considered to be costly for the company; it was not seen to produce enough savings; and no immediate pay off was expected due to an assumed long payback period. In addition, it was mentioned that investments with an element of sustainability should be pursued without investing extra capital. Still, it was argued that, in a situation where an investment decision concerning the purchase of a new machine or piece of equipment was made by comparing different alternatives, the most sustainability-friendly of the options was usually favored.

*"In different machine and equipment solutions, if we include sustainability criteria in the planning already in the beginning, it will come along all the way. Of course it is almost a rule that sustainability increases the price by 10-15%, but such investments are not disproved because of that. On the contrary, it usually supports the investment." (8)*

Besides the difficulties in quantifying the benefits, other challenges were brought up as well. One of these problems was concerned with investing in new technology. Due to the technology's novelty, it may have not been broadly applied, which is why investment decisions in such



cases were oftentimes based on feelings. This, in turn, posed difficulties when the investment evaluation was focused on examining whether the investment was beneficial or harmful to the brands. Even if the investment included elements of sustainability, and thus, it was believed to generate brand benefits, the question remained on whether the benefits were still big enough in terms of profitability. Moreover, being able to indicate that sustainability related decisions had a clear impact on sales was considered challenging. For example, the question of whether increased sales were due to the use of carbon footprints in packaging, the ethical purchases, or something else completely was left unanswered.

*“We have no way of knowing that if we choose to do this, consumers will buy our products 20% more than now. Usually it is the competition and the brand value that shift consumer desirability”.* (5)

Some of the interviewees, however, believed that sustainability initiatives, which were related to energy systems, waste minimization, and studying the impact on consumer behavior, could be better managed with the use of financial metrics. Regardless, it was pointed out that within the case company, financial metrics were already in use for managing sustainability initiatives and keeping the focus on costs, savings and/or revenues, and the payback period. Rather, the challenges in managing sustainability initiatives were related to the question of how to evaluate and quantify intangible impacts, such as the impact on brand image, environment, and employees or stakeholders' wellbeing. As one interviewee emphasized, it would be necessary to understand the bigger picture for the investment. Furthermore, it was acknowledged that there is a growing interest in measuring

different performance areas within the firm.

*“Increasingly we are moving to a direction where the ability to measure different things is pursued. When we have clear metrics, the company management also reviews the results when, in turn, the utilization of the information becomes a part of everyday business. That means also that the issues are increasingly brought up on the agenda as they have a productive and a financial impact.”* (7)

### **9.3 Sustainability within formal investment processes**

As within the case company no decisions were made based purely on sustainability, investments where pursuing sustainability would have been the key objective were not undertaken either and the interviewees did not acknowledge separate investment criteria for sustainability initiatives. Furthermore, it was highlighted that there are no separate sections in the current investment forms for evaluating investments on their sustainability. The investment calculation sheet was additionally said to have no space for entering amounts in euros for sustainability related costs or benefits.

Investments, regardless of their type, were mainly considered to arise from a clear need. Sustainability was, however, acknowledged as a theme that often sprung up when making investment decisions.

*“I do not recall any investments that would have been strictly sustainability investments. Rather, sustainability is always an integrated element. Investments are based on another factor or enthusiasm than sustainability. When you read the investment handbook, the investments*



*within our company are based on financials. If the investment will not fit in to our determined payback period, it seldom goes forward, even if it is justified by arguing that the investment contains an element of sustainability. But as said, when the investment is considered necessary, we follow the investment guidelines, which recommend having at least two alternatives, or rather, even three. And there we do consider sustainability issues. If you have an alternative, which does not include as many sustainability elements, no matter how cheap it is, it is seldom selected". (8)*

*"I do not believe that we go forward with that (sustainability) angle ahead. But I do believe that when an investment decision has been made, and we are choosing the way in which it will be executed, we do take into account sustainability. Meaning that we will be as energy-efficient as possible and that we will utilize the ingredients as comprehensively as possible. We do think about these issues on that level. However, I must say that the level of our investment is, at the moment, quite realistic. We must have a clear need in order to execute additional investments". (7)*

In fact, all investments within the case company seemed to be based mainly on two criterions: generated revenues or savings and the payback period. The factors taken additionally into account in investment accounting were likewise mainly tangible factors, such as costs, revenues, savings, work hours, required human resources, and the value of the investment. In other words, the whole investment pot, with money spent and money saved and/or earned.

*"It's about numbers. It is difficult to indicate any other benefits, such as the impact on broader opinions and consumer behavior. We do not have much information on that". (5)*

*"In investment or any other decisions where money is involved, there is no separate section for sustainability. By the way, what does sustainability mean? I am wondering what kinds of measurable benefits are generated when a sustainability investment is made? Measuring the benefit is a multifaceted task. It is very difficult to calculate it. If it improves the brand image, measuring that in euros...Someday, those euros will return to us through our sales, but will that happen in one year or in ten years?" (3)*

Even though hard data was mainly used for measuring the profitability of the investments, a SWOT-analysis was occasionally carried out when evaluating soft data factors, such as the impact on corporate image. Nevertheless, such factors were not considered to strongly guide the company's investment evaluation. In addition, one interviewee mentioned that for example in terms of minimization of the environmental burden and waste of packaging materials, different sustainability aspects were taken into account only if they were part of the company's broader objectives.

*"Let's say that we would shift from using a plastic shrink-wrap to a recycled cardboard. The investment proposal should include factors like the amount of waste is decreased by X percentage, it is recyclable, and that it decreases the total load this and this much. Of course these issues must be taken into account. And probably we do have investments which are slightly more expensive, but generate additional benefits through decreased packaging waste". (5)*

The investment payback period was limited in most cases to 1-3 years, while in terms of bigger investments a longer payback period from 7 to 10 years was considered acceptable. However, in general, the payback period was expected to

be short and some interviewees argued that if the payback period was expected to be over 3 years, the investment plan was likely dealt as a no-go. Lastly, it was mentioned, that the investments were approved according to a “ladder” which designated the person who had the power to approve the investment.

*“We use a “ladder” in investment decision-making. When the costs of the investment stay below a certain euro amount, the manager of the line of business can approve the investment. If the investment costs exceed that euro-limit, the CEO makes the approval. However, the decisions made by the CEO are also restricted to a certain euro-limit. If the costs of the investment exceed that, the approval is made collaboratively between the CEO and the chairman of the board of directors. Ultimately, the board of directors approves the most expensive investments”. (8)*

#### **9.4 Direct responses to the impact model**

Although the interviewees had the possibility to see the impact model throughout the interviews, in the beginning of the third interview theme – sustainability ROI – the interviewees were asked to look more closely at the impact model (Cf. Appendix B). Next, the interviewees were asked in which kind of decision-making situations the company’s impact on sustainability as monetary costs or benefits would be necessary. This question was answered by the interviewees naming several situations, such as decisions concerning divestments, energy systems, packaging development, raw material purchases from other countries, new product development, emission taxation, and occupational health and safety. Regardless of the question’s primary objective to better understand the specific

occasions in which examining the caused impacts as monetary numbers would be beneficial, the closer look at the impact model raised other concerns about the impacts’ examination, their valuation, and overall utilization. The following citations refer to the reactions and concerns raised by the impact model.

*“This is such a new approach that one should first have a gut feeling on whether it is a good thing that these benefits are generated, or that there is this burden, which has a negative impact”. (6)*

*“My initial reaction is that calculating these (impacts) would be so complicated that you could not really implement it”. (4)*

*“Valuing these issues is really difficult. Therefore, I would not go there yet. We are not at that point at the moment. Are we in ten years? That is a different thing. However, in terms of the issues where we already have clear processes in place and we have the knowledge about their cost-structure, if we can monetize those units in euros, then we can integrate them into the firm’s decision-making”. (7)*

*“This (impact model) is very logical and it contains issues that are taken into account, absolutely. We just do not make a fuss about it. Anyway, in terms of sustainability initiatives, I feel that the focus should be rather simple: few goals for example in terms of energy, waste or social equity, which are then systematically implemented. Meaning, you have a few concrete examples that you will start systematically to put in place”. (5)*

Furthermore, it was emphasized that, at the end of the day, companies compete against each other. Therefore, a risk concerning the possibility that other firms would not measure their caused

impacts in a fair way was recognized. In addition, it was argued that it would be impossible to create an unequivocal financial metric that would reveal the truth.

*“These (sustainability) issues are incredibly difficult and multifaceted. This is an area where you can always find a reason to enter the numbers from one side into the other, which makes it impossible to establish an unequivocal metric that could reveal the truth. And to build a model that allows the person calculating these issues to calculate whatever he/she wants is unnecessary. It does not serve any purpose”.* (4)

Based on the presented impact model (Cf. Appendix B), the interviewees were asked, which impacts should be included in the company's investment accounting as costs or benefits, or mutually left out. Even though in general taking into account the different impacts was considered important, only a few interviewees were able to pick specific impacts from the model. Those interviewees who were able to name specific impacts considered the most critical such issues as employment, consumer awareness, intangible impacts on society and the environment, waste minimization, and the use of renewable energy. In addition, it was argued that decisions concerning manufacturing the products outside of Finland were important, since those would have an impact on the brand and thus sales. Another interviewee pointed out that all the impacts are important as long as they match the company's competitiveness, yet focus should be kept in clear, single objectives for impact examination. Such approach would make it easier to tackle critical issues within the case company even if they were expensive. Moreover, it was contemplated which factors should be included in the measurement of sustainability ROI, if not everything.

*“There are many impacts that should absolutely be...if you think about the zero waste produced by the production. That is an issue, which is not just ecological, but also cost-efficient. If you can utilize everything, it will not generate any costs. Meaning there are issues here, of which recognition as such is already valuable. And then it is valuable that you can prove that the investment is profitable and smart. But there is the question, what do you calculate if you do not calculate everything?”* (3)

The question of which impacts should not be included in the investment accounting was the most challenging. The only specific impacts selected were the use of virgin fibers in packaging and the emissions produced by the end user during the use of the product. In terms of the use of virgin fibers in packaging, the answer traced it back to the law, which currently prohibits the use of recycled fibers in food packaging to avoid contamination risk. The emissions caused by the end user were in turn considered unnecessary because of the company's lack of influence on the user's selected cooking method. It was also claimed that the impact model contained a lot of different emissions, although naming the emissions that should not be included in the investment accounting was not possible in the theme interviews.

Regardless of the challenges in naming important and unnecessary impacts, the topic as such stimulated plenty of discussion on the measurement and monetization of the different impacts. Some of the interviewees discussed the perspective of approaching certain impacts either as positive or negative. It was mentioned that the way in which the impact model divided the different impacts into positive and negative ones was subjective and represented only the viewpoint of the Finnish consumer. Furthermore,

it was believed to be challenging to measure all of the impacts in the impact model, and so presenting them in a form of a checklist was considered essential. Overall, a broader understanding by the management of the firm's generated impacts was seen as important, even if those impacts were not presented in monetary values.

*"I really hope that these issues would get the weight they deserve and that they would not only be a part of the company's strategy and everyday business, but also a part of management. Management would be supported by those metrics, which would allow for utilizing the information on our current processes. This would give us the facts. The intangible benefits are difficult to monetize, which makes it very easy to question them."* (7)

Examining and monetizing the impacts was a topic that was discussed also from the business' perspective. It was suggested that if the caused impacts were measured in monetary values, such approach would need to be equal to those of other companies. One interviewee also argued that, even though measuring the caused impacts was possible, there should be a greater driver behind the reason to do so, such as the company's official order to take these issues into account in investment decisions no matter what the cost. The same interviewee also viewed that the impacts listed in the impact model were already taken into account in the firm's investment decisions, albeit they always led to a discussion on whether it was possible to execute the same solution in a cheaper way and make more profit. Finally, one interviewee did not consider it important to take into account any of the listed impacts. Nonetheless, the same interviewee argued that, immediately when the different impacts transform into real money, they

should be included in the investment accounting.

### **9.5 Possibilities to utilize sustainability ROI within the case company**

The idea of measuring sustainability ROI within the case company was received by the interviewees with mixed feelings. The approach of giving a monetary value to different external impacts of the firm was considered particularly challenging, and thus, debatable. Overall, there were three main concerns in terms of the measurement of sustainability ROI. The first concern arose from a certain degree of subjectivity, which was believed to be inherent to sustainability ROI. The subjectivity was linked to the idea that the users of the sustainability ROI metric would use it in an uncontrolled way and value different factors based on their personal value belief system, or worse yet, enter only favorable numbers into the ROI equation. This subjectivity is also acknowledged by Phillips & Phillips (2011, 104), especially in terms of soft data, although they do argue that such data can contribute to economic value as much as hard data measures.

The second concern arose from the idea that even if the different forms of capital were monetized, the real costs and benefits from these would never be internalized, thus making the numbers entered into the sustainability ROI metric nothing but 'Donald Duck' money. In other words, the numbers would only exist on paper, but they would never convert into real cash.

*"It can be challenging to monetize these impacts. Would it only be the best guess, which is far from the truth?"* (6)



*“There are things such as the sustainability investments, and then there are things that have a real concrete monetary value. If the real value included in the income statement is different from the value calculated with the sustainability ROI metric, then we should question how things are calculated if they do not match.” (4)*

The third concern emphasized the amount of work required to monetize the impacts. It was believed to be such a tremendous task that it would sooner or later be cut out by the company. However, among the interviewees, the idea of measuring sustainability ROI was not considered completely useless. Three interviewees emphasized that the use of such metric would help justify sustainability initiatives to both the upper management and one's self.

*“Using such a metric would be really beneficial in terms of decision-making. Nowadays many issues are measured in money. It just happens to be so that measuring these issues in money is what matters within the evaluations made by corporate management. (...) In terms of sustainability, you can never be completely sure what your personal knowledge, view, and understanding is on these broad issues. Therefore, you cannot be sure either, on whether you are able to make the right decision, which then leads to business growth, allows for the creation of new product innovations and enables the business to go forward. Or if we present new things to the corporate management, but do not speak the same language as them, then we have a problem. In my opinion, the ability to value these issues in money makes things happen.” (7)*

*“It would make justifying sustainability initiatives to upper management easier. Justifying sustainability initiatives with sales numbers is not often possible.” (2)*

The ability to take into account the intangible benefits was viewed as essential, even though presenting sustainability-related factors with numbers was considered even more important than that. The interviewees believed that such an approach would not only force the decision-makers to see their decisions from a new vantage point, but that it would also deliver the message to them more efficiently. Those interviewees who were more skeptical in terms of measuring sustainability ROI to begin with, agreed that its approach would nevertheless become critical if the company would have to start purchasing contingents for emissions, or if the firm was taxed based on its environmental performance. In addition, measuring sustainability ROI was considered to have potential, if it was used as a supportive metric in parallel with the firm's traditional accounting. However, as one interviewee pointed out, if the sustainability ROI metric produced data that clashed with the traditional accounting, then the question of how certain things were calculated would need to be dealt with. It was also remarked that such metric could evoke negative images, especially when examining the impacts to various different stakeholders. It was considered possible that the metric would reveal that other stakeholders in the value chain would benefit more from the investment decision than others. This possibility is also acknowledged by Smith & Ward (2007, 18), who argue that a conflict may arise when duty to nature is included in business obligations: for example when comparing the environmental impacts to lower consumer prices, a stakeholder conflict may occur.

Among the above-mentioned issues, the question of verifying the sustainability impacts to consumers was also brought up. According to one interviewee, the most cost-efficient and cheap solutions are the worst. Furthermore, it

was believed that if the company operated in a way which would decrease the negative impacts and increase the positive ones, it would have an effect on the products' costs, thus decreasing the company's profit margin or increasing their consumer prices. It was pointed out that since certain issues in the field of sustainability, like regional growth, are not transparent to consumers, verifying them is problematic. Additionally, it was argued that if measuring sustainability ROI would lead to a situation where the company's improved sustainability performance would not affect consumer behavior positively, the metric would no longer be helpful.

Overall, regardless of several concerns, presenting the sustainability impacts through a ROI metric was believed to be more credible than evaluating them based on gut feeling. The ability to incorporate into investment decision-making the caused impacts on society within a global framework was considered as such valuable and essential. Even if the impacts were only listed in the form of a checklist, the interviewees believed it would enhance their consideration in decision-making and help with communicating about them through the brands. It was also pointed out that, by examining the different impacts more holistically, corporate responsibility reporting in the firm could be improved. Finally, the possibilities for measuring sustainability ROI were considered applicable, if not within the case company, then at least by a third-party organization which could measure sustainability ROI for different brands. In fact, external pressure was considered the most powerful in terms of improving CSR. It was argued that the society ultimately sets the rules for the game. As long as the external pressure has no impact on the company's financial performance, the data produced by the sustainability ROI metric was believed to have no effect on decision-making.

## **9.6 Credibility of sustainability ROI metric**

To the question of whether the sustainability ROI metric could be considered credible, the answers were somewhat tentative. The majority of the interviewees did not reject the idea of using such a metric, although they did acknowledge many challenges for it. Those interviewees that were most open to the idea, regardless of the challenging nature of monetizing certain impacts, defended their opinion by arguing that even though different metrics were oftentimes criticized and the environmental impact evaluations were considered unreliable, none of the other man-made financial metrics were completely solid either.

*"Oftentimes different metrics are criticized and environmental impact evaluations are considered unreliable. However, none of the financial metrics as such are solid either. If you wish to hide certain numbers, it is possible to do. Therefore, why would a sustainability ROI metric not be as credible as any other human-made accounting metric?" (1)*

*"I believe it would be (credible). It perhaps depends on the person who presents these things to the people who are accustomed to see euros, how well he/she can present them. Either way, presenting these issues through the sustainability ROI metric is more credible than talking about them based on a gut feeling. (...) Being able to present the impacts on society and within a global framework is valuable. Even if the different possible impacts would just be listed, it would allow them to be taken into account and for them to be communicated through the brands." (2)*

The other interviewees who thought the

sustainability ROI metric was somewhat credible, emphasized three things: First of all, that all new metrics always require reasoning and explanation, and that includes the sustainability ROI metric. Second, if the sustainability ROI metric was used, it should be audited the same way as any other financial metric. Third, the use of the metric would be considered credible as long as it advanced the company's competitiveness, its measurement was well executed, and the focus was kept on the big issues instead of the details.

*"If it is done well and let's say that the framing concentrates on big issues and not on details, then it would be credible. The more details it takes into account, the more uncertain it becomes, thus, allowing its critical review. If it has too many weak spots, then its use may be very rare."* (8)

*"I really hope it was credible. I also believe that there is a demand for such a metric, because it links these issues to the procedures that are used in investment decision-making. It is all about euros. (...) I believe that if you had a well-functioning ROI metric for valuing these issues, then those issues would gain a bigger role in corporate decision-making."* (7)

*"It is credible. As long as sustainability is a competitive advantage and not a competitive disadvantage, it is easy. However, even if we had great metrics to measure our sustainability performance, but the consumer does not buy our products or value them, then we are in trouble."* (5)

*"It would be (credible) if it was audited the same way as traditional financial numbers are audited. (...) Honest comparability would be essential to avoid picking up the favorable factors and*

*leaving out undesirable ones. For example, if an independent association measured the sustainability ROI for different brands, then it would get a real focus. The external pressure is what counts, because it has an impact on our financial performance."* (3)

Two of the interviewees did not consider the sustainability ROI metric credible, due to its assumed subjectivity, poor comparability, and the perception that the externalities are not internalized.

*"I have a feeling that since these external impacts are not internalized in the form of money in our business, the decisions would be based on traditional metrics."* (6)

*"Everything must be calculated the same way to ensure comparability. The use of the sustainability ROI metric should be restricted to ensure that there is no subjectivity in it. On the other hand, such restrictions would make the metric so stiff that it would not be possible to apply it to different projects and situations."* (4)



## **10. Solution proposal: baseline for measuring sustainability ROI**

As mentioned in the beginning of the thesis, among the increased general comprehension on the subject matter, the case company hoped the master's thesis to provide some valid economic indicators for measuring and monetizing different external impacts. This was reasoned by the need to justify the firm's sustainability investments more holistically, yet the externalities were also considered an important dimension of the measurement of sustainability ROI. Based on the literature review and the theme interviews, I have acknowledged that the work required to build a comprehensive sustainability ROI metric is a task, which extends beyond the boundaries of a master's thesis work. Furthermore, as the theme interviews suggest, there are various issues that must be addressed first in order to develop a metric that could be considered both credible and applicable. This is especially the case if the ROI metric takes into account the externalities. While some of these issues are related to societal demands, others stem instead from the development of indexes and metrics that allow for quantifying the externalities. However, in order to establish a platform for the further development of the sustainability ROI metric, the solution proposal can be considered as an initial step to approaching the subject matter within the case company. The solution proposal takes into account the most critical factors presented in the theoretical framework and in the interview analysis, including setting the objectives, setting the boundaries for impact data collection, and the monetization of the impact data.

Although the solution proposal has adopted many of its elements from the literature, its refinement is based on the information collected during the theme interviews and the various collaborative meetings with the case company's supervisor. In other words, the solution proposal contains various co-creational features,

although the thesis outcome is a result of rather independent work. Furthermore, although it was suggested during the theme interviews that the measurement of sustainability ROI could be a more suitable task of a third-party organization, in this chapter the platform is developed per se for the use of the case company. This was decided in consensus with the case company thesis supervisor, since the case company's need for sustainability ROI currently stems primarily from finding new methods to justify the sustainability initiatives internally to upper management.

### **10.1 Setting the objectives for the sustainability initiative**

Setting clear objectives for sustainability initiatives is one of the most critical steps to measuring sustainability ROI. This is an issue which was emphasized by the case company interviewees and is also one of the cornerstones of the ROI methodology (Phillips & Phillips 2011). In the ROI methodology, the objective setting is implemented through an initial analysis, the aim of which is to align the project with the business by determining the payoff needs. The sustainability initiative should answer one of the following two questions: *what is the potential opportunity that the sustainability initiative aims to seize?*, or *what is the problem that is worth solving?* (Phillips & Phillips 2011, 74.) According to Phillips & Phillips (2011, 95), alignment with the business is the most critical element in any sustainability initiative if the project's objective is to reap positive returns. Furthermore, Phillips & Phillips (2011, 96) have also claimed that the number one reason projects fail is when they move forward without defining the problem they are trying to solve, while the second most common reason is the misalignment between the project's objectives and the business' needs.

Following the ROI methodology (Phillips & Phillips 2011), the first phase in a sustainability initiative is setting the objectives for it, which requires identifying the key stakeholders that have a significant role concerning the initiative. When the stakeholders are identified, the next step is then to make a needs assessment in order to decide how the sustainability initiative should pursue the stakeholder needs with the existing resources. In this phase, the needs assessment should focus on five areas: *payoff needs, business needs, performance needs, learning needs, and preference needs*. (Phillips & Phillips 2011, 74-76.)

The payoff needs are directly linked to the problem or opportunity affecting the organization, such as reducing its generated CO<sub>2</sub> emissions. Examining the business needs, on the other hand, should ensure that the sustainability initiative is connected to the key business measures, such as key performance indicators, performance scorecards, and goals for individuals. Overall, these key measures form a baseline for evaluating the improvements achieved during the initiative, but they are also critical in terms of comprehending the overall success of the project. (Phillips & Phillips 2011, 74-76.)

Performance needs, by contrast, should focus on examining what must change in terms of behaviors, habits, applications, or implementations when addressing the business needs. In other words, evaluating performance needs aims to align the sustainability initiative with the business. This may require the use of analytical tools that allow the determination of the cause of the problem, or the critical changes needed to seize the opportunity. In order to change the performance behaviors or habits, examining the learning needs is the next step.

This includes comprehending the specific skills, knowledge, and information that needs to be acquired in order to change the performance. As Phillips & Phillips (2011) argue, every solution contains a learning component. That is to say that every project contains factors which people involved in the sustainability initiative must be aware of in order to make the project successful. Finally, to identify the structure of the sustainability initiative and to achieve the desired reactions for it, preference needs must be studied to understand how information regarding the initiative should be presented. This analysis aims to set guidelines for communicating issues such as scope of project, time frame, structure, budget for project implementation, and delivery. (Phillips & Phillips 2011, 74-76.)

## **10.2 Setting boundaries for impact data collection**

To know whether the sustainability initiative is producing the desired results, measuring the application and implementation of the project is critical. These data can be also understood as impact evaluation data, which show how well the sustainability initiative is meeting the business' needs. (Phillips & Phillips 2011, 137.) The impacts can be divided into two groups: the social, environmental, and economic impacts, and the financial return (Epstein & Rejc Buhovac 2014, 141). Epstein & Rejc Buhovac (2014) argue that measuring the impact especially on society is difficult, as many of the benefits are intangible by nature, and converting the impacts into monetary units is challenging. Still, while obtaining the traditional financial measures from cost accounting systems when examining the payoffs generated by sustainability initiatives is important, collecting data holistically to understand the broader impact can also be

considered essential. (Epstein & Rejc Buhovac 2014, 141-142.)

As for the theme interviews, there are few factors that must be kept in mind when examining the different impacts. Especially when identifying the externalities, the theme interviews imply that such approach may by default contain a certain level of subjectivity. The problem may arise when identifying the various impacts or when deciding which impacts are even essential to decision-making to begin with. Furthermore, whereas one person may be willing to exclude all the impacts caused by the end user at the time that they consume the product, another person may see a sweet spot existing in that particular stage of the product life cycle. For example, if the cooking of the product is known to produce CO<sub>2</sub> emissions, there is a possibility that by re-designing the product or by developing a new product, the emissions generated in its end use can be notably decreased or even entirely avoided, thus decreasing the externalities. Such product development could create true innovations and have a positive effect on both profit creation and sustainability.

All in all, reaching a consensus on the measurement boundaries, and thus, the considered impacts, must be established as an essential step to measuring sustainability ROI. Next, the task is to identify and select the appropriate impact measures for measuring the different costs and benefits linked to the sustainability initiative (Phillips & Phillips 2011, 145). According to Epstein & Rejc Buhovac (2014), quantifying the link between the corporate actions and financial performance is difficult. Improved CSR can create financial value through increased revenues as a result of improved corporate reputation, or from lowered costs due to process improvements and

decreases in regulatory fines. (Epstein & Rejc Buhovac 2014, 165.) In order to find the link between sustainability and financial performance, Epstein & Rejc Buhovac (2014, 176-185) suggest implementing a measurement system that measures inputs, processes, sustainability performance, financial performance, risks, and stakeholders' reactions.

In the following sub-chapter, the solution proposal discusses some of the most used methods for measuring and monetizing impact data. Depending on the objectives of the sustainability initiative, the types of data can vary. Whereas some data collection methods are more appropriate for measuring business impacts, others may better serve the purpose of measuring stakeholder reactions or the importance of other relevant issues (Phillips & Phillips 2011, 151; Epstein & Rejc Buhovac 2014, 181).

### ***10.3 Measuring and monetizing impact data***

The sustainability literature (Phillips & Phillips 2011; Epstein & Rejc Buhovac 2014) provides many metrics for measuring impact. Within this thesis, some of the measurable features were presented in chapter 6.6, *Calculating sustainability ROI*, including risks and used resources. As the chapter 6.6 also suggests, sustainability ROI can be measured by focusing only on the direct costs and benefits to the company. This approach represents the traditional measurement of ROI and may be sufficient in terms of evaluating the sustainability initiative, especially if it focuses on eco-efficiency. However, with the case company, the need and the interest has been to evaluate the impacts on a broader scale, including the

impact on biodiversity, ecosystem services, and the national economy. Therefore, the concept of measuring sustainability ROI has been expanded in the case company to also include the idea that sustainability ROI could take into account the firm's externalities, which at the moment are not considered as part of the case company's decision-making. Furthermore, it was argued that, in the case company, justifying sustainability initiatives with traditional indicators of economic efficiency was not sufficient if there was a need to address the generated benefits holistically. Many of the case company's investment decisions are already made based on cost-efficiency, which has not allowed for examining the impacts from a more broad perspective. In addition, in order to fully exploit the understanding of externalities in the company's decision-making, it is essential to be able to communicate the impacts in economic terms. Therefore the search for metrics and indexes that would enable the monetization of the externalities has been one of the objectives of this thesis.

In chapter 6.3, *The measurement boundaries*, the thesis presented some market and non-market impacts, which can also be understood as different costs and benefits generated by the business' operations. According to Epstein & Rejc Buhovac (2014, 145), to measure the externalities, one must first understand how stakeholders place value on different social, environmental and economic assets. For this purpose, the existing sustainability literature (Phillips & Phillips 2011; Epstein & Rejc Buhovac 2014) provides some examples on how to approach the monetization, including methods such as WTP, contingent valuation, travel cost method, hedonic pricing, and damage costing. Some examples concerning the use of these monetization methods were presented in chapter 6.6, *Calculating sustainability ROI*.

Epstein & Rejc Buhovac (2014, 151) however remind that collecting adequate data for each of these metrics is a task that requires substantial time and financial resources. Therefore, many companies turn to third-party organizations to get help with the research. According to Epstein & Rejc Buhovac (2014, 151), in some cases though, companies may develop simple and quick approximations to enhance their understanding on the scope of the impacts, thus improving business decisions too. Impact evaluation can be made also through less resource-demanding means, such as opinion polls, surveys, questionnaires, focus groups, interviews, and action planning (Phillips & Phillips 2011, 151; Epstein & Rejc Buhovac 2014, 181). These methods can be used to measure several variables, such as job satisfaction, organizational commitment, effectiveness of campaigns, and the firm's vulnerabilities (Phillips & Phillips 2011, 153; Epstein & Rejc Buhovac 2014, 181). However, as Phillips & Phillips (2011, 153) argue, many of these measures are based on perception, and thus, may be more appropriate for addressing the intangible impacts of the sustainability initiative.

All in all, depending on the gathered data and the objective of the sustainability initiative, measuring sustainability ROI can be approached in a multitude of ways. Even if measuring ROI for sustainability initiatives was approached from a rather traditional angle, by focusing only on the direct costs and benefits to the company, the broader impacts could still be presented alongside the ROI calculations either as tangible or intangible factors that could then help evaluate the overall impact of the investment. Or, as it was suggested in the interviews, evaluating the externalities and intangibles through a checklist could also be a starting point for much more comprehensive investment decision-making.

*Summary*  
*Baseline for measuring sustainability ROI*

# 1. SETTING THE OBJECTIVES FOR THE SUSTAINABILITY INITIATIVE

## - THE BUSINESS ALIGNMENT

*What is the potential opportunity the sustainability initiative aims to seize, or what is the problem worth of solving?*

**1. Identify the key stakeholders in terms of the initiative**, such as employees, consumers, communities, rulemakers, watchdogs, business partners, competitors, investors, and suppliers.

### 2. Make a needs assessment

- *What are the stakeholder needs?*

#### A) Payoff needs:

*Why is the sustainability initiative necessary?*

*What is the worth of pursuing the problem or opportunity?*

*Is the investment or solution feasible?*

*What is the likelihood of a positive ROI?*

*What is the likelihood of a positive environmental contribution?*

#### B) Business needs:

*What are the key business measures in order to clearly assess the business situation?*

*What are the appropriate hard and soft data measures?*

#### C) Performance needs:

*In order to address the business needs, what must change in terms of behaviors, habits, application, and implementation?*

*If the sustainability initiative aims to solve a problem, what is the cause of the problem?*

*If the sustainability initiative aims to seize an opportunity, what is inhibiting the organization to take the advantage?*

#### D) Learning needs:

*In order to change performance behaviors and habits, what specific skills, knowledge, or information must be acquired?*

#### E) Preference needs:

*What is the structure of the sustainability initiative in order to meet the aforementioned needs?*

*What are the project boundaries in terms of budget, scope, timing, technology, location, staffing, and deliverables?*



## 2. SETTING BOUNDARIES FOR IMPACT DATA COLLECTION

*In order to seize the opportunity or solve a problem, how broadly should data be gathered to comprehend whether the sustainability initiative is producing desired results and meeting the needs?*

### 3. Determine which data needs to be collected during the implementation of the sustainability initiative

- E.g. reaction and learning data

### 4. Determine which data needs to be collected after the implementation of the sustainability initiative

- Impact data

### 5. Implement a measurement system to measure the data

- Select the adequate measures

## 3. MEASURING AND MONETIZING IMPACT DATA

*What are the impacts generated by the sustainability initiative?*

### 6. Measure the impacts (cost & benefits)

- Impact on beneficiaries
- Impact on project partners
- Impact on society
- Impact for the company
- Impact for employees

### 7. Convert the impact data to money if possible or treat it as intangible

### 8. Measure the risks

- Calculate the benefit in terms of each issue that may generate risk
- Calculate the potential costs in terms of each risk, such as reputation costs
- Estimate the probability that each risk may materialize
- Calculate the expected value of each risk by multiplying the potential cost of each risk by its expected profitability of materializing
- Estimate when (time) the risk may emerge
- Calculate the Net Present Value (NPV) of all the risks

### 9. Calculate the ROI for the sustainability initiative (see the next page)



## SUSTAINABILITY ROI - INTERNAL COSTS AND BENEFITS

### BENEFITS

#### REVENUES

**B2C and B2B revenues from a more sustainable brand**

Revenues from green products and product innovations

Revenues from services and leasing

Increased employee productivity

€...

€...

€...

€...

**Total benefits:**

€...

#### INTANGIBLE BENEFITS

- |                  |                      |                               |                             |                       |
|------------------|----------------------|-------------------------------|-----------------------------|-----------------------|
| - Accountability | - Capacity           | - Engagement                  | - Job satisfaction          | - Reputation          |
| - Alliances      | - Clarity            | - Human life                  | - Leadership                | - Team effectiveness  |
| - Attention      | - Communication      | - Image                       | - Loyalty                   | - Timeliness          |
| - Awards         | - CSR                | - Environmental consciousness | - Networking                | - Sustainability      |
| - Branding       | - Customer service   | - Intellectual capital        | - Organizational commitment | - Work / life balance |
| - Capability     | - Employee attitudes | - Innovation and creativity   | - Partnering                |                       |

### COSTS

#### RESOURCE COSTS

**Reduced material expenses / Total raw material costs**

**Reduced water expenses / A cubic metric (m<sup>3</sup>) of water consumed (plant intake)**

**Reduced energy expenses / Energy kWh consumed**

**Reduced waste expenses (Full Cost of Waste)**

€...

€...

€...

€...

#### HUMAN RESOURCE COSTS

**Reduced hiring and attrition expenses:**

€...

#### RISK COSTS

**Reduced risks**

- Strategic risks
- Operational risks
- Compliance risks
- Financial risks

€...

**Total costs:**

€...

## SUSTAINABILITY ROI - EXTERNAL COSTS AND BENEFITS

### BENEFITS

#### BENEFITS OF ENVIRONMENTAL PROTECTION

Biodiversity protection  
Ecosystem services protection



#### ECONOMIC INDICATOR

The TEEB Valuation Database  
The TEEB Valuation Database

#### ECONOMIC BENEFITS

Number of local jobs created  
Business output / sales volumes  
Added value / Gross Regional Product  
Wealth (property values)  
Personal income (wages)



#### ECONOMIC INDICATOR

A public information study  
The economic portion of a formal  
“environmental impact assessment”  
A benefit-cost analysis: the net economic  
benefit to the area versus the net cost

#### INTANGIBLE BENEFITS

- Positive community impacts
- Product safety
- Increased consumer awareness
- Transparency
- Satisfying emerging consumer needs

#### MEASURES FOR INTANGIBLE BENEFITS

- Opinion polls
- Surveys
- Questionnaires
- Focus groups
- Interviews

### COSTS

#### SOCIAL COSTS OF GHG EMISSIONS

Green house gases generated during farming,  
production, logistics, and end-use



#### ECONOMIC INDICATOR

Social Cost of Carbon (SCC)  
Social Cost of Methane  
Social Cost of Nitrous Oxide  
AEA Technology Environment

#### COSTS OF ENVIRONMENTAL DAMAGES

Biodiversity damages  
Ecosystem services damages



#### ECONOMIC INDICATOR

The TEEB Valuation Database  
The TEEB Valuation Database

Eutrophication

Hedonic Pricing  
Willingness to Pay (WTP)  
Travel Cost Method  
Contingent Valuation (CV)  
Replacement Cost Method

Tables 18, pages 83-86: Baseline for measuring sustainability ROI (Phillips & Phillips 2011; Epstein & Rejc Buhovac 2014; Willard 2012; Social Cost of Carbon (SCC), Interagency Working Group on Social Cost of Carbon 2013; The TEEB Valuation Database, Van der Ploeg & De Groot 2010; Artell 2014; AEA Technology Environment, Holland et al. 2005; NCEE National Center for Environmental Economics, Marten & Newbold 2011; Pretty et al. 2003; Chen et al. 2014; Weisbrod & Weisbrod 1997; Epstein & Rejc Buhovac 2014; Werbach 2009)



## *Part IV* | *Conclusion & Discussion*





## 11. Conclusion and discussion

In the beginning of the thesis, four research questions were presented:

- 1) *What kind of quantitative methods are there for measuring corporate social responsibility (CSR)?*
- 2) *How can ROI be measured for sustainability?*
- 3) *How are sustainability investment decisions carried out in the case company?*
- 4) *Could measuring sustainability ROI improve investment decision-making in the case company?*

In terms of the first research question, *what kind of quantitative methods are there for measuring corporate social responsibility (CSR)?*, the thesis presented some of the best practice discussed in sustainability textbooks. However, as the sustainability literature (Epstein & Rejc Buhovac 2014; Berns et al. 2009) suggests, there is no one single approach to measuring CSR. While some brand owners, such as PUMA® (Puma 2010), have established their own metrics to evaluating the magnitude of their caused impacts, some companies do not measure their sustainability performance at all (Esty & Winston 2006, 24).

To address the second research question, *how can ROI be measured for sustainability?*, the thesis discussed the different costs and benefits linked to CSR, which can be used as inputs in ROI calculations. These inputs included the direct costs and benefits to the company, such as added revenue streams from new product innovations and sustainable brand building, and total material costs. In addition, sustainability ROI was examined from the perspective of measuring externalities. This approach is justified by the different needs of companies. In order to develop sustainability into competitive advantage, finding that sweet spot is essential. In some cases, companies may want to reap the

low hanging fruits by pursuing improvements in eco- and resource-efficiency, thus, keeping the focus on direct costs and benefits. In other cases on the other hand, a holistic impact evaluation may be more suitable in terms of justifying the sustainability investment and identifying the sweet spot. Even if such investments do not produce immediate payoff, they may still be critical in terms of strengthening stakeholder relationships, which in turn enhance sustainable business, innovativeness, competitiveness, and ultimately, profit creation.

The thesis also presented the ROI methodology (Phillips & Phillips 2011), which has previously been applied to measure the ROI for sustainability initiatives. The ROI methodology as such may create certain gaps when sustainability is approached as a holistic trend, including the greater public good as part of its domain. As long as the intention is to focus only on the direct costs and benefits to the company, the ROI methodology definitely enhances the gathering of good, quantifiable data. However, if the investment impacts need to be measured on a broader systemic level, the methodology is, as it stands, in my opinion, insufficient. Even though the book, *The Green Scorecard: Measuring the Return on Investment in Sustainability Initiatives* (Phillips & Phillips 2011), sees green projects as advancing the pursuit of sustainability, in terms of CSR, this approach is perhaps too narrow. If the goal is to use ROI as a platform for responsible business, the ability to look at the investment impacts from a more broad perspective may be necessary. Leaving the greater public good outside the impact boundaries may ease the measurement of impacts, but it does not enhance understanding on how corporate decisions affect wellbeing in the society and ecosystems at large. The wellbeing of these different stakeholders is nevertheless essential, because in a closed

system – which the world ultimately is – all decisions will have an effect on the system as a whole.

To answer the two remaining research questions, *how are sustainability investment decisions carried out in the case company?* and *could measuring sustainability ROI improve investment decision-making in the case company?*, the thesis made use of theme interview as a qualitative research method. The objective was to study how sustainability is incorporated in formal investment processes within the case company and how sustainability should ideally be addressed in the firm's investment decision-making, often based on ROI. The choice of the research method was based to a large extent on preliminary knowledge of the case company. The qualitative research could have focused on studying one specific sustainability investment, but no such adequate sustainability investment cases were found. The alternative of studying other sustainability-related projects was also considered for the research, but ultimately, for the purpose of this thesis, studying the formal investment processes and the feasibility of the sustainability ROI metric on a general level was most relevant. Based on this decision, theme interview as a qualitative research method was considered the most appropriate form of execution. Theme interview was thought to enable open discussion with the interviewees and to make it possible to ask clarifying questions while focusing on three main themes. This was believed to generate the most valuable insights too.

In the case company, sustainability was typically approached from the perspective of cost- and eco-efficiency. The interviews revealed that the case company did not have any 'sustainability investments,' which would have pushed the

company to pursue sustainability advantage. Rather, 'investing in sustainability' in the case company referred to activity wherein sustainability was linked to other objectives, such as pursuing improved brand image benefits or cost-efficiency with increased profitability. Although it was claimed that sustainability was integrated into the firm's way of making business, and that the corporation contributing to common good was an important aspect, the decision-making was to a large extent still based on economics with the case company's own financial assets playing the most critical role. Many interviewees, however, argued, that investment decisions should be made based on a more holistic impact evaluation, which would allow for examining the generated costs and benefits on a larger systemic level.

One of the objectives of the thesis was also to study whether the measurement of sustainability ROI would bring about more comprehensive investment decision-making. In general, the idea of measuring sustainability ROI was not rejected outright, yet it was believed that the actual implementation of such a metric would require more work before it could fully serve the needs of corporate decision-making. Many of the benefits arising from sustainability were considered difficult to define and quantify, such as the impact on sales, corporate image, environment, and stakeholder wellbeing. Although many of these benefits can be presented as generated payoffs alongside the ROI calculations, the interviews imply that the real challenge is to identify and measure them in the first place, making monetization less urgent. In addition, the idea of integrating the externalities into investment accounting raised many concerns among the interviewees. First of all, indicating how the externalities are internalized in the financial performance was considered challenging. Some interviewees also argued that, as long



as the system-wide externalities caused by the business' operations did not internalize, they should not be taken into account in the investment accounting. Secondly, it was brought up that monetizing the externalities is subjective, and thus, unreliable. I personally agree that the challenging nature of monetizing the intangible externalities in particular is an issue that needs to be addressed. That, in turn, may require finding broader consensus on the monetization of externalities among policymakers and different stakeholders in society. Epstein & Rejc Buhovac (2014, 145) have argued that monetizing the different impacts is highly dependent on data on how people value things in the first place. Therefore, having a better understanding of the societal values for different impacts is critical if they are to be further utilized in corporate decision-making and the measurement of sustainability ROI.

The role of the society in terms of pushing companies towards more sustainable practices was emphasized often. It was claimed that the society sets the rules for the game and it is the outer pressure, such as emission taxation, that ultimately counts. In the sustainability literature, the views of some of the researchers are, however, quite the opposite to this argument, especially when it comes to assessing the negative impacts generated by business operations. Various authors have presented counterarguments for companies' attempts to outsource their responsibility when tackling sustainability challenges. Sukhdev et al. (2014, 11) for example have argued that companies must be held responsible for their negative externalities. Gray (2010, 57) has emphasized instead the role of power and influence, which in today's world are very much in the hands of corporations. As Gray (2010) argues, *"power must be matched with a responsibility"* (Gray

2010, 57). He underscores that the ways in which corporations practice lobbying and thus, seek to legitimize their corporate power, often turns the blame to the civil society while helping to camouflage the corporations accountable for the caused impacts.

Overall, the literature review and the case study imply that approaching sustainability within corporations is a topic which has no simple answers. Moreover, the academic discussion around monetizing externalities in the area of sustainability, such as the impact on ecosystem services, can be considered controversial. Whereas some authors (Sukhdev et al. 2014) hasten to warn of the dangers that lie in giving numeric values to nature's resources, other authors (Moldan et al. 2012, 7) see having a numeric value for sustainability as a feasible approach. The intention of this thesis, however, has not been to take a position on any one of these approaches, but rather, to discuss the possibilities of better incorporating the different aspects of sustainability into investment decision-making, which oftentimes relies on hard data items alone. As it has been argued by Sukhdev et al. (2014, 4), in economic choices nature often has an invisible role, which is also one of the reasons why natural capital has been so inconsiderately exploited. In addition, based on the theme interviews, there is a reason to believe that for companies to better evaluate the consumption of different capitals besides their own financial assets, indicators that allow the measurement and monetization of externalities are needed. While identifying and measuring externalities is critical in terms of responsible business, it is also important for other reasons. Having a positive effect on society is necessary, because ultimately it is the positive stakeholder reactions that are vital to all businesses and thus, corporate financial performance (Epstein & Rejc

Buhovac 2014, 261).

Whether the use of sustainability ROI could truly help companies to improve their consideration of externalities in their investment decision-making remains unclear and an approach that should be further researched. However, the theme interviews have given me a reason to believe that the measurement of ROI is an approach worth considering. It may require a new mindset though, from the companies and the society at large. There is also the possibility of developing the sustainability ROI metric similarly to the design ROI – if there is enough interest – with a network consisting of different actors within the industry. Overall, the idea of measuring sustainability ROI was received in the case company with tentative enthusiasm. For most of the interviewees, measuring sustainability ROI was a completely new approach and, although the majority of the interviewees saw possibilities in the use of the metric, it was emphasized that the company would need more time to adapt to it. Nevertheless, the ability to communicate and justify sustainability issues in financial terms was considered essential, since money was named as a common determinant in the investment evaluations made by the firm's management. Furthermore, a well-executed sustainability ROI metric was believed to have a positive effect on corporate decision-making and possibilities for its use were believed to exist, if not internally, then at least within a third-party organization, which could measure the sustainability ROI for different brands.

However, going all the way back to the beginning of the thesis and looking at Espeland & Stevens (2008) work, the thoughts from which were discussed in chapter 3.1, *Quantifying sustainability*, I feel it is important to critically examine the purpose of quantifying sustainability

and measuring it in terms of ROI. For me, the interest in the subject matter arose from the challenging nature of justifying sustainability initiatives in today's business world, where the ability to 'show the money' often seems to be the one factor that changes the game. Therefore, I have considered the ability to communicate about sustainability in financial terms essential. But as Espeland & Stevens (2008) point out, a world where numbers rule does not always serve our best. Due to this reason, I consider it important to ask whether it is possible that quantifying sustainability could cause more harm than benefit, for example if it leads to the commoditization of natural capital? Can we be sure that examining sustainability through quantified measures increases awareness and, thus, brings about a positive change? Or is there a possibility that its impact is the reverse? Although these questions were not answered in the thesis, I recommend the reader ponder further the ways and contexts in which environment sustainability ROI could function best.

Throughout the thesis process, I have personally tried to envision the most ideal environment for measuring sustainability ROI. The thesis has not taken a strong stance on whether sustainability ROI should be measured focusing purely on the direct costs or benefits, or if externalities should be taken into account too. Rather, this thesis has presented both options as possible. It is challenging at the moment to suggest either one of these approaches over the other, as there is no broad knowledge of measuring sustainability ROI in practice. To actually know which approach would truly affect investment decision-making procedures, would mean that the sustainability ROI metric could be applied in real investment cases, testing its functionality. Furthermore, I would consider it relevant to study whether measuring sustainability ROI would be more

appropriate if in the context of a circular economy – an alternative for our current, linear, throwaway economy. In a different context, such as that of the circular economy, measuring sustainability ROI could possibly provide more meaningful data for companies whose business models would be per se based on to more sustainable practices.

Lastly, I consider it important to discuss the overall achievements of this thesis. In many ways, the thesis topic, sustainability ROI, has been a challenging research area, yet an important learning experience. I acknowledge that there are many issues left, such as finding indicators to measure different corporate impacts and how to actually use the data as part of investment accounting, to which the thesis has not been able to provide an answer as comprehensively as I would have hoped. In many ways the thesis has been, rather, a scratch of the surface of a broader issue, where the measurement of sustainability ROI is just one area. I believe

that although sustainability ROI could at its best provide valuable data for decision-makers, approaching sustainability within corporations should, however, start from the very beginning by defining the term ‘sustainability’ within the context of that organization. The definition would not only clarify the key objectives of CSR, but would also enhance the sustainability management, and ultimately, its measurement. Within the context of this thesis, the management of sustainability initiatives has been brought up as part of measuring ROI, yet the thesis has not provided any model on how to actually manage sustainability initiatives that aim for high ROI. All in all, there are many issues that require further research to successfully measure sustainability ROI. Besides finding more systematic approaches of measuring and managing sustainability initiatives that aim for a high ROI, the thesis topic ‘sustainability ROI’ as such requires further research before its feasibility in a broader context can be fully evaluated.

## References

Accounting Tools. 2015. The Cost Method of Accounting for Investments. Retrieved July 17, 2015, <http://www.accountingtools.com/cost-method-of-accounting>

AllBusiness. "Acquisition Cost". Retrieved May 18, 2015, [http://www.allbusiness.com/barrons\\_dictionary/dictionary-acquisition-cost-4942742-1.html](http://www.allbusiness.com/barrons_dictionary/dictionary-acquisition-cost-4942742-1.html)

Artell, J. 2014. Lots of value? A spatial hedonic approach to water quality valuation. *Journal of Environmental Planning and Management*, Volume 57, Issue 6 (2014), pp. 862-882.

Artto, E., Koskela, M., Leppiniemi, J., Pitkänen, E. 1990. *Laskentatoimen perusteet*. Kustannusosakeyhtiö Otava. Keuruu.

Aspara, J. 2012. Design ROI – Mitä sijoitus muotoiluun tuottaa. Fennia Prize seminaari (2012).

Beattie, A. FYI On ROI: A Guide To Calculating Return On Investment. Investopedia. Retrieved April 14, 2015, <http://www.investopedia.com/articles/basics/10/guide-to-calculating-roi.asp>

Bell, S., Morse, S. 2003. *Measuring Sustainability: Learning by Doing*. Earthscan. London.

Berns, M., Townend, A., Khayat, Z., Balagopal, B., Reeves, M., Hopkins, M. S., Kruschwitz, N. 2009. The Business of New Sustainability: What It Means to Managers Now? *MIT Sloan Management Review*. Fall 2009, pp. 2-8.

Borja de Mozota, B. 2003. *Design Management: Using Design to Build Brand Value and Corporate Innovation*. Skyhorse Publishing Inc.

Borja de Mozota, B. 2006. The Four Powers of Design: A Value Model in Design Management. *Design Management Review*. Vol. 17. No. 2, pp. 44-53.

Brose, I. 2008. Monetization of Environmental Externalities. *The Annals of "Dunarea de Jos" University of Galati Fascicle I – 2008. Economics and Applied Informatics*. Years XIV, pp. 13-18.

Business Dictionary. "Benefit". Retrieved June 3, 2015, <http://www.businessdictionary.com/definition/benefit.html>

Business Dictionary. "Cost". Retrieved March 12, 2015, <http://www.businessdictionary.com/definition/cost.html>

Business Dictionary. "Organizational design". Retrieved April 16, 2015, <http://www.businessdictionary.com/definition/organizational-design.html>

Business Dictionary. "Stakeholder". Retrieved June 30, 2015, <http://www.businessdictionary.com/definition/stakeholder.html> (read 30.6.2015)

Bärlund, K., United Nations Economic Commission for Europe. Sustainable development – concept and action. Retrieved April 1, 2015, [http://www.unece.org/oes/nutshell/2004-2005/focus\\_sustainable\\_development.html](http://www.unece.org/oes/nutshell/2004-2005/focus_sustainable_development.html)

De Groot, R., Brander, L., Van der Ploeg, S., Costanza, R., Bernard, F., Braat, L., Christie, M., Crossman, N.,

Chen, Q., Kozar, O., Li, F., Pekonen, A., Saarman, P. 2014. Eutrophication in the Baltic Sea – Characteristics and challenges. HENVI workshop 2014. University of Helsinki.

Design ROI –Tutkimusprojekti. 2012. D-ROI: Mitattavaa muotoilua.

Epstein, Marc J., Rejc Buhovac, A. 2014. Making Sustainability Work. Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts. Greenleaf Publishing. United Kingdom.

Espeland, W.N., Stevens, M.L. 2008. A Sociology of Quantification. European Journal of Sociology, Volume 49, Issue 03, December 2008, pp. 401-436.

Esty, D.C., Winston, A. S. 2006. Green to Gold: How smart companies use environmental strategy to innovate, create value, and build competitive advantage. Yale University Press. USA.

Figge, F., Hahn, T. 2005. The Cost of Sustainability Capital and the Creation of Sustainable Value by Companies. Journal of Industrial Economy, Volume 9, Number 4 (2005), pp. 47-58.

Gray, R. 2009. Is accounting for sustainability actually accounting for sustainability...and how would we know? An exploration of narratives of organizations and the planet. Accounting, Organizations and Society 35 (2010), pp.47-62.

Hertenstein, J., Platt, M., Veryzer, R. 2005. The Impact of Industrial Design Effectiveness on Corporate Financial Performance. The Journal of Product Innovation Management. Vol. 22. No.2, pp. 3-21.

Hillman, A. J., Keim, G. D. 2000. Shareholder Value, stakeholder management, and social issues: What's the bottom line? Strategic Management Journal, 22 (2001), pp. 125-139.

Holland, M., Pye, S., Watkiss, P., Droste-Franke, B., Bickel, P. 2005. Damages per tonne emission of PM2.5, NH3, SO2, NOx and VOCs from each EU25 Member State (excluding Cyprus) and surrounding seas - Service Contract for carrying out cost-benefit analysis of air quality related issues, in particular in the clean air for Europe (CAFE) programme. AEA Technology Environment. United Kingdom.

Interagency Working Group on Social Cost of Carbon, United States Government. 2013. Technical Support Document: - Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866-. May 2013.

Investopedia. "Investment". Retrieved March 12, 2015, <http://www.investopedia.com/terms/i/investment.asp>

Investopedia. "Return on investment". Retrieved April 19, 2015, <http://www.investopedia.com/terms/r/returnoninvestment.asp>

Investopedia. "Shareholder". Retrieved April 7, 2015, <http://www.investopedia.com/terms/s/shareholder.asp>

Kinnunen, J, Laitinen E.K., Laitinen, T., Leppiniemi, J., Puttonen, V. 2006. Mitä on yrityksen taloushallinto? Otavan Kirjapaino Oy. Keuruu.

Kumar, V., Christodouloupoulou, A. 2013. Sustainability and branding: An integrated perspective. *Industrial Marketing Management* 43 (2014), pp. 6-15.

Laszlo, C., Zhexembayeva, N. 2011. *Embedded Sustainability: The next big competitive advantage*. Stanford Business Books. Stanford. California.

López-Ridaura, S., Masera, O., Astier, M. 2002. Evaluating the sustainability of complex socio-environmental systems. the MESMIS framework. *Ecological Indicators* 2 (2002), pp. 135-148.

Marten, A.L., Newbold, S. C. 2011. Estimating the Social Cost of Non-CO2 GHG Emissions: Methane and Nitrous Oxide. NCEE National Center for Environmental Economics. NCEE Working Paper Series, #11-01, January 2011.

Masdorf, Z. 2010. Sustainability and Return on Investment (Without the Spin). *EHS Today*. Retrieved May 25, 2015, <http://ehstoday.com/environment/green/sustainability-return-investment-3429>

McKenzie, S. 2004. *Social Sustainability: Towards Some Definitions*. Hawke Research Institute Working Paper Series, No 27.

Moldan, B., Janoušková, S., Hák, T. 2012. How to understand and measure sustainability: Indicators and targets. *Ecological Indicators* 17 (2012), pp. 4-13.

Phillips, P.P., Phillips, J.J. 2007. *Show me the money: How to determine ROI in people, projects and programs*. Berrett-Koehler Publishers, Inc. San Francisco.

Phillips, P.P, Phillips, J. J. 2011. *The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives*. Nicholas Brealey Publishing. USA.

Phillips, P.P, Phillips, J. J. 2013. Measuring Return on Investment on Green Projects and Sustainability Efforts. *Performance Improvement*, Vol. 52, no.4, April 2013, pp. 38-52.

Pretty, J.N., Mason, C.F., Nedwell, D.B., Hine, R. E., Leaf, S., Dils, R. 2003. Environmental Costs of Freshwater Eutrophication in England and Wales. *Environmental Science & Technology*. Vol. 37, NO. 2 (2003), pp. 201-208.

Porter, M. E., Hills, Greg., Pfitzer, Marc., Patscheke, Sonja., Hawkins, Elizabeth. 2012. *Measuring Shared Value: How to Unlock Value by Linking Social and Business Results*. FSG.



Porter, M. E., Kramer, M. R. 2011. Creating Shared Value. Harvard Business Review. Retrieved July 19, 2015, <https://hbr.org/2011/01/the-big-idea-creating-shared-value>

Puma. Environmental Profit And Loss Account. Retrieved May 25, 2015, <http://about.puma.com/en/sustainability/environment/environmental-profit-and-loss-account>

Puma. 2010. PUMA's Environmental Profit and Loss Account for the year ended 31 December 2010.

Raisioagro. Paikoillenne, valmiit – hep! Retrieved April 20, 2015, <http://www.raisioagro.com/huippufarmari-haussa-kilpailu>

Raisio. Retrieved April 17, 2015, <http://www.raisio.com>

Raisio, Historia. Retrieved July 20, 2015, <http://www.raisio.com/fi/raisio-sai-alkunsa-myllysta>

Raisio Group. Retrieved April 17, 2015, <http://www.raisio.com/en/raisio-group>

Salorinne, S., Laamanen, K. 1993. Tuotekehityksen mittaaminen. Tekninen tiedotus 1/94. Metalliteollisuuden Keskusliitto.

Savitz, A. W., Weber, K. 2014. The triple bottom line: how today's best-run companies are achieving economic, social and environmental success – and how you can too. John Wiley & Sons, Inc. The USA.

Shepard, R. B. 2006. Quantifying Sustainability: A Pragmatic Approach. Applied Ecosystem Services Inc.

Smith, N.C., Ward, H. 2007. Corporate Social Responsibility at a Crossroads? Business Strategy Review, Spring 2009. London business School.

Srivastava, R., Shervani, T., Fahey, L. 1999. Marketing, Business Processes, and Shareholder Value: An Organizationally Embedded View of Marketing Activities and the Discipline of Marketing. Journal of Marketing. Vol. 63. Special Issues, pp. 168-179.

Sukhdev, P., Wittmer, H., Miller, D. 2014. The Economics of Ecosystems and Biodiversity (TEEB): Challenges and Responses. Nature in the Balance: The Economics of Biodiversity. Oxford University Press. Oxford.

Tuomi, J., Sarajärvi, A. 2009. Laadullinen tutkimus ja sisällönanalyysi. Kustannusosakeyhtiö Tammi. Helsinki.

UNIDO. United Nations Industrial Development Organization. What is CSR? Retrieved June 1, 2015, [http://www.unido.org/en/what-we-do/trade/csr/what-is-csr.html#pp1\[g1\]/0/](http://www.unido.org/en/what-we-do/trade/csr/what-is-csr.html#pp1[g1]/0/)

United Nations. 2008. Measuring Sustainable Development. Report of the Joint UNECE/OECD/Eurostat Working Group on Statistics for Sustainable Development. United Nations, New York and Geneva 2008.

United Nations Environment Programme. Ecosystem Services Economics. Retrieved April 23, 2015, <http://www.unep.org/ecosystemmanagement/UNEPsWork/EcosystemServicesandEconomics/tabid/514/Default>

aspx

Van der Ploeg, S., De Groot, R.S. 2010. The TEEB Valuation Database – a searchable database of 1310 estimates of monetary values of ecosystem services. Foundation for Sustainable Development, Wageningen, The Netherlands.

Venkatachalam, L. 2003. The contingent valuation method: a review. *Environmental Impact Assessment Review* 24 (2004), pp. 89-124.

Weisbrod, G., Weisbrod, B. 1997. Measuring economic impacts of projects and programs. Economic Development Research Group.

Werbach, A. 2009. *Strategy For Sustainability: a business manifesto*. Harvard Business Press Boston, Massachusetts.

Willard, B. Sustainability Advantage. Retrieved June 10, 2015, <http://www.sustainabilityadvantage.com/about.html>

Willard, B. 2012, *The New Sustainability Advantage. Seven Business Case Benefits of a Triple Bottom Line*. New Society Publishers. Canada.

Wright, T.C. 2015. How Is Capital Investment Treated on a Balance Sheet? *Hearst Newspapers*. Retrieved July 17, 2015, <http://smallbusiness.chron.com/capital-investment-treated-balance-sheet-66077.html>

## ***Figures and tables***

### **Table 1: Balanced Score Card model for design**

Borja de Mozota, B. 2006. The Four Powers of Design: A Value Model in Design Management. *Design Management Review*. Vol. 17. No. 2, pp. 47.

### **Figure 2: Corporate social responsibility**

UNIDO. United Nations Industrial Development Organization. What is CSR? Retrieved June 1, 2015, [http://www.unido.org/en/what-we-do/trade/csr/what-is-csr.html#pp1\[g1\]/0/](http://www.unido.org/en/what-we-do/trade/csr/what-is-csr.html#pp1[g1]/0/)

### **Figure 3: Sustainability Advantage Worksheets / TOTALS**

Willard, B. Sustainability Advantage. Retrieved June 10, 2015, <http://www.sustainabilityadvantage.com/about.html>

### **Table 4: PUMA's environmental impacts**

Puma. 2010. PUMA's Environmental Profit and Loss Account for the year ended 31 December 2010, pp. 6.

### **Table 5: PUMA's E P&L Results**

Puma. 2010. PUMA's Environmental Profit and Loss Account for the year ended 31 December 2010, pp.8-9.

### **Table 6: PUMA's E P&L Results**

Puma. 2010. PUMA's Environmental Profit and Loss Account for the year ended 31 December 2010, pp.8-9.

**Table 7: Scope and boundary of E P&L**

Puma. 2010. PUMA's Environmental Profit and Loss Account for the year ended 31 December 2010, pp. 12.

**Table 8: Levels and Types of Data**

Phillips, P.P, Phillips, J. J. 2011. The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives. Nicholas Brealey Publishing. USA, pp. 71.

**Figure 9: Eco-Advantage Playing Field: The “Five Forces” (Potter) that may have an effect on business**

Esty, D.C., Winston, A. S. 2006. Green to Gold: How smart companies use environmental strategy to innovate, create value, and build competitive advantage. Yale University Press. USA, pp. 67.

**Table 10: Positive market and non-market impacts**

References:

Bell, S., Morse, S. 2003. Measuring Sustainability: Learning by Doing. Earthscan. London.

Berns, M., Townend, A., Khayat, Z., Balagopal, B., Reeves, M., Hopkins, M. S., Kruschwitz, N. 2009. The Business of New Sustainability: What It Means to Managers Now? MIT Sloan Management Review. Fall 2009, pp. 2-8.

Epstein, Marc J., Rejc Buhovac, A. 2014. Making Sustainability Work. Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts. Greenleaf Publishing. United Kingdom.

Esty, D.C., Winston, A. S. 2006. Green to Gold: How smart companies use environmental strategy to innovate, create value, and build competitive advantage. Yale University Press. USA.

Laszlo, C., Zhexembayeva, N. 2011. Embedded Sustainability: The next big competitive advantage. Stanford Business Books. Stanford. California.

Phillips, P.P, Phillips, J. J. 2011. The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives. Nicholas Brealey Publishing.

Willard, B. 2012, The New Sustainability Advantage. Seven Business Case Benefits of a Triple Bottom Line. New Society Publishers. Canada.

**Table 11: Negative market and non-market impacts**

References:

Bell, S., Morse, S. 2003. Measuring Sustainability: Learning by Doing. Earthscan. London.

Berns, M., Townend, A., Khayat, Z., Balagopal, B., Reeves, M., Hopkins, M. S., Kruschwitz, N. 2009. The Business of New Sustainability: What It Means to Managers Now? MIT Sloan Management Review. Fall 2009, pp. 2-8.

Epstein, Marc J., Rejc Buhovac, A. 2014. Making Sustainability Work. Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts. Greenleaf Publishing. United Kingdom.

Esty, D.C., Winston, A. S. 2006. Green to Gold: How smart companies use environmental strategy to innovate, create value, and build competitive advantage. Yale University Press. USA.

Laszlo, C., Zhexembayeva, N. 2011. Embedded Sustainability: The next big competitive advantage. Stanford Business Books. Stanford. California.

Phillips, P.P, Phillips, J. J. 2011. The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives. Nicholas Brealey Publishing.

Willard, B. 2012, The New Sustainability Advantage. Seven Business Case Benefits of a Triple Bottom Line. New Society Publishers. Canada.

**Table 12: Examples of hard data**

Phillips, P.P, Phillips, J. J. 2011. The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives. Nicholas Brealey Publishing. USA, pp. 103.

**Table 13: Table: Examples of Soft Data**

Phillips, P.P, Phillips, J. J. 2011. The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives. Nicholas Brealey Publishing. USA, pp. 105.

**Figure 14: To Convert or Not to Convert?**

Phillips, P.P, Phillips, J. J. 2011. The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives. Nicholas Brealey Publishing. USA, pp. 190

**Table 15: Project ROI**

References:

Epstein, Marc J., Rejc Buhovac, A. 2014. Making Sustainability Work. Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts. Greenleaf Publishing. United Kingdom.

Laszlo, C., Zhexembayeva, N. 2011. Embedded Sustainability: The next big competitive advantage. Stanford Business Books. Stanford. California.

Phillips, P.P, Phillips, J. J. 2011. The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives. Nicholas Brealey Publishing.

Willard, B. 2012, The New Sustainability Advantage. Seven Business Case Benefits of a Triple Bottom Line. New Society Publishers. Canada.

**Table 16: Social Cost of Carbon**

Interagency Working Group on Social Cost of Carbon, United States Government. 2013. Technical Support Document: - Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866-. May 2013

**Table 17: External costs and benefits**

References:

Artell, J. 2014. Lots of value? A spatial hedonic approach to water quality valuation. Journal of Environmental Planning and Management, Volume 57, Issue 6 (2014), pp. 862-882.

Chen, Q., Kozar, O., Li, F., Pekonen, A., Saarman, P. 2014. Eutrophication in the Baltic Sea – Characteristics and challenges. HENVI workshop 2014. University of Helsinki.

Epstein, Marc J., Rejc Buhovac, A. 2014. Making Sustainability Work. Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts. Greenleaf Publishing. United Kingdom.

Holland, M., Pye, S., Watkiss, P., Droste-Franke, B., Bickel, P. 2005. Damages per tonne emission of PM2.5, NH3, SO2, NOx and VOCs from each EU25 Member State (excluding Cyprus) and surrounding seas - Service Contract for carrying out cost-benefit analysis of air quality related issues, in particular in the clean air for Europe (CAFE) programme. AEA Technology Environment. United Kingdom.

Interagency Working Group on Social Cost of Carbon, United States Government. 2013. Technical Support Document: - Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866-. May 2013

Marten, A.L., Newbold, S. C. 2011. Estimating the Social Cost of Non-CO2 GHG Emissions: Methane and Nitrous Oxide. NCEE National Center for Environmental Economics. NCEE Working Paper Series, #11-01, January 2011.

Pretty, J.N., Mason, C.F., Nedwell, D.B., Hine, R. E., Leaf, S., Dils, R. 2003. Environmental Costs of Freshwater Eutrophication in England and Wales. Environmental Science & Technology. Vol. 37, NO. 2 (2003), pp. 201-208.

Van der Ploeg, S., De Groot, R.S. 2010. The TEEB Valuation Database – a searchable database of 1310 estimates of monetary values of ecosystem services. Foundation for Sustainable Development, Wageningen, The Netherlands.

Weisbrod, G., Weisbrod, B. 1997. Measuring economic impacts of projects and programs. Economic Development Research Group.

Werbach, A. 2009. Strategy For Sustainability: a business manifesto. Harvard Business Press Boston. Massachusetts.

#### **Tables 18: Baseline for measuring sustainability ROI**

##### **References:**

Artell, J. 2014. Lots of value? A spatial hedonic approach to water quality valuation. Journal of Environmental Planning and Management, Volume 57, Issue 6 (2014), pp. 862-882.

Chen, Q., Kozar, O., Li, F., Pekonen, A., Saarman, P. 2014. Eutrophication in the Baltic Sea – Characteristics and challenges. HENVI workshop 2014. University of Helsinki.

Epstein, Marc J., Rejc Buhovac, A. 2014. Making Sustainability Work. Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts. Greenleaf Publishing. United Kingdom.

Holland, M., Pye, S., Watkiss, P., Droste-Franke, B., Bickel, P. 2005. Damages per tonne emission of PM2.5, NH3, SO2, NOx and VOCs from each EU25 Member State (excluding Cyprus) and surrounding seas - Service Contract for carrying out cost-benefit analysis of air quality related issues, in particular in the clean air for Europe (CAFE) programme. AEA Technology Environment. United Kingdom.

Interagency Working Group on Social Cost of Carbon, United States Government. 2013. Technical Support Document: - Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866-. May 2013

Marten, A.L., Newbold, S. C. 2011. Estimating the Social Cost of Non-CO2 GHG Emissions: Methane and Nitrous Oxide. NCEE National Center for Environmental Economics. NCEE Working Paper Series, #11-01, January 2011.

Phillips, P.P, Phillips, J. J. 2011. The Green Scorecard. Measuring the Return on Investment in Sustainability Initiatives. Nicholas Brealey Publishing. USA.

Pretty, J.N., Mason, C.F., Nedwell, D.B., Hine, R. E., Leaf, S., Dils, R. 2003. Environmental Costs of Freshwater Eutrophication in England and Wales. Environmental Science & Technology. Vol. 37, NO. 2 (2003), pp. 201-208.

Van der Ploeg, S., De Groot, R.S. 2010. The TEEB Valuation Database – a searchable database of 1310 estimates of monetary values of ecosystem services. Foundation for Sustainable Development, Wageningen, The Netherlands.

Weisbrod, G., Weisbrod, B. 1997. Measuring economic impacts of projects and programs. Economic Development Research Group.

Werbach, A. 2009. Strategy For Sustainability: a business manifesto. Harvard Business Press Boston. Massachusetts.

Willard, B. 2012, The New Sustainability Advantage. Seven Business Case Benefits of a Triple Bottom Line. New Society Publishers. Canada.



## *Appendices*

## **Appendix A**

### **Theme interview questions**

#### **Theme 1: Background**

- 1) *What is sustainability from Raisio's viewpoint?*
- 2) *How is sustainability reflected in your work?*
- 3) *What type of corporate decisions do you make in terms of sustainability?*
- 4) *Who else has an effect on the sustainability-related corporate decisions you face in your work?*
- 5) *Who are the key stakeholders considered in corporate decision-making? (E.g. clients, employees, government, NGOs, communities)*
- 6) *How are the needs of different stakeholders identified?*
- 7) *How is Raisio evaluating its impact outside its corporate boundaries? For example, how is the impact on the environment evaluated? How is the impact on farmer communities evaluated?*

#### **Theme 2: Formal investment processes / investment criterion**

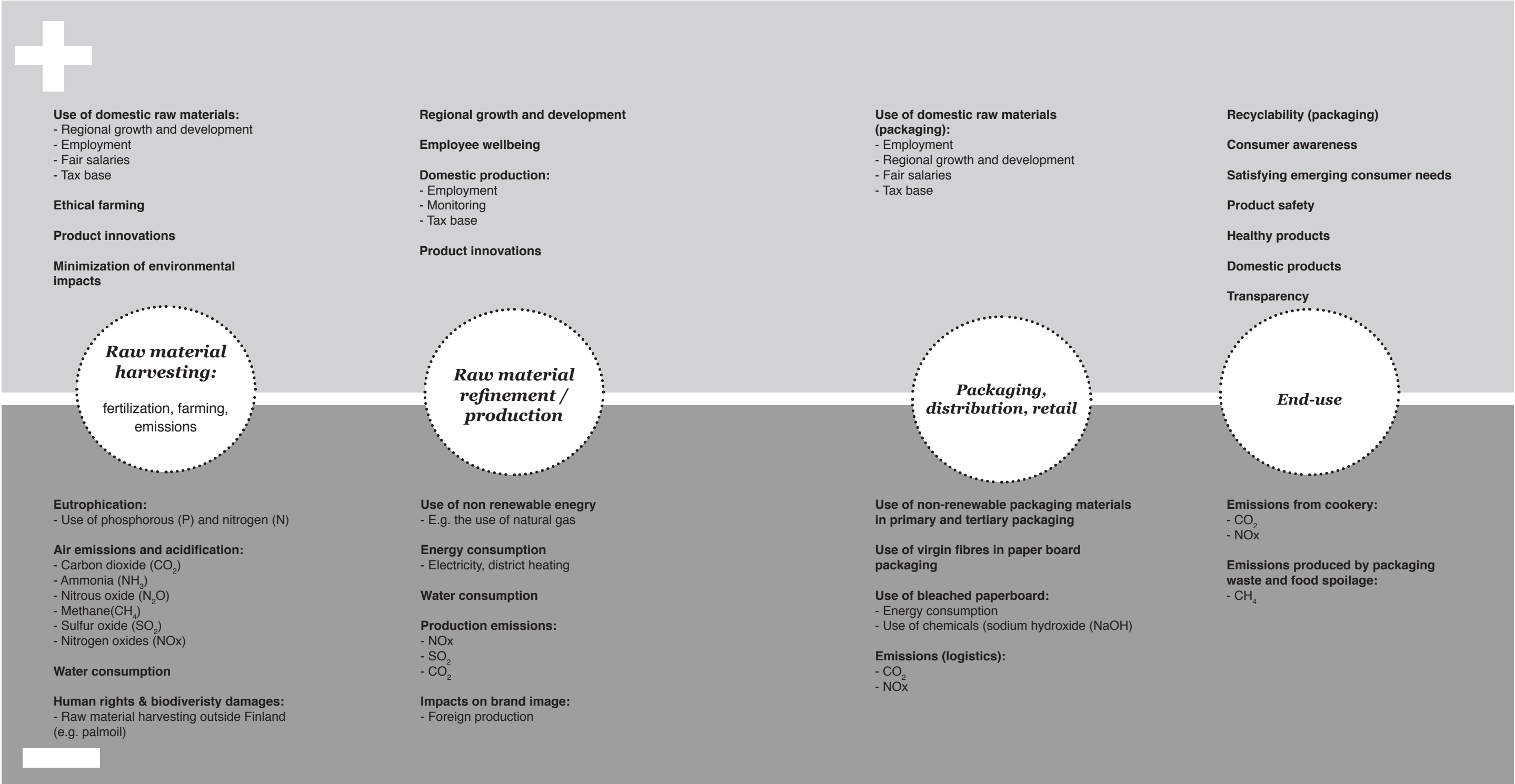
- 8) *Which data on the different costs and benefits are used in your sustainability investment evaluations?*
- 9) *What kind of challenges are there in terms of sustainability investments?*
- 10) *What criteria are there for sustainability investments?*
- 11) *Which sustainability initiatives could be better managed with the use of financial metrics?*
- 12) *Which elements are part of your sustainability investment accounting at the moment?*
- 13) *Is there a pre-determined payback period for sustainability investments?*
- 14) *Sustainability oftentimes encompasses the idea of different capitals. One of these capitals is financial resources, but companies also exploit capitals such as nature's capital (water, energy, raw materials), and social capital such as employee knowhow and societal infrastructure. Which of these aforementioned capitals does Raisio consider in its sustainability investments?*

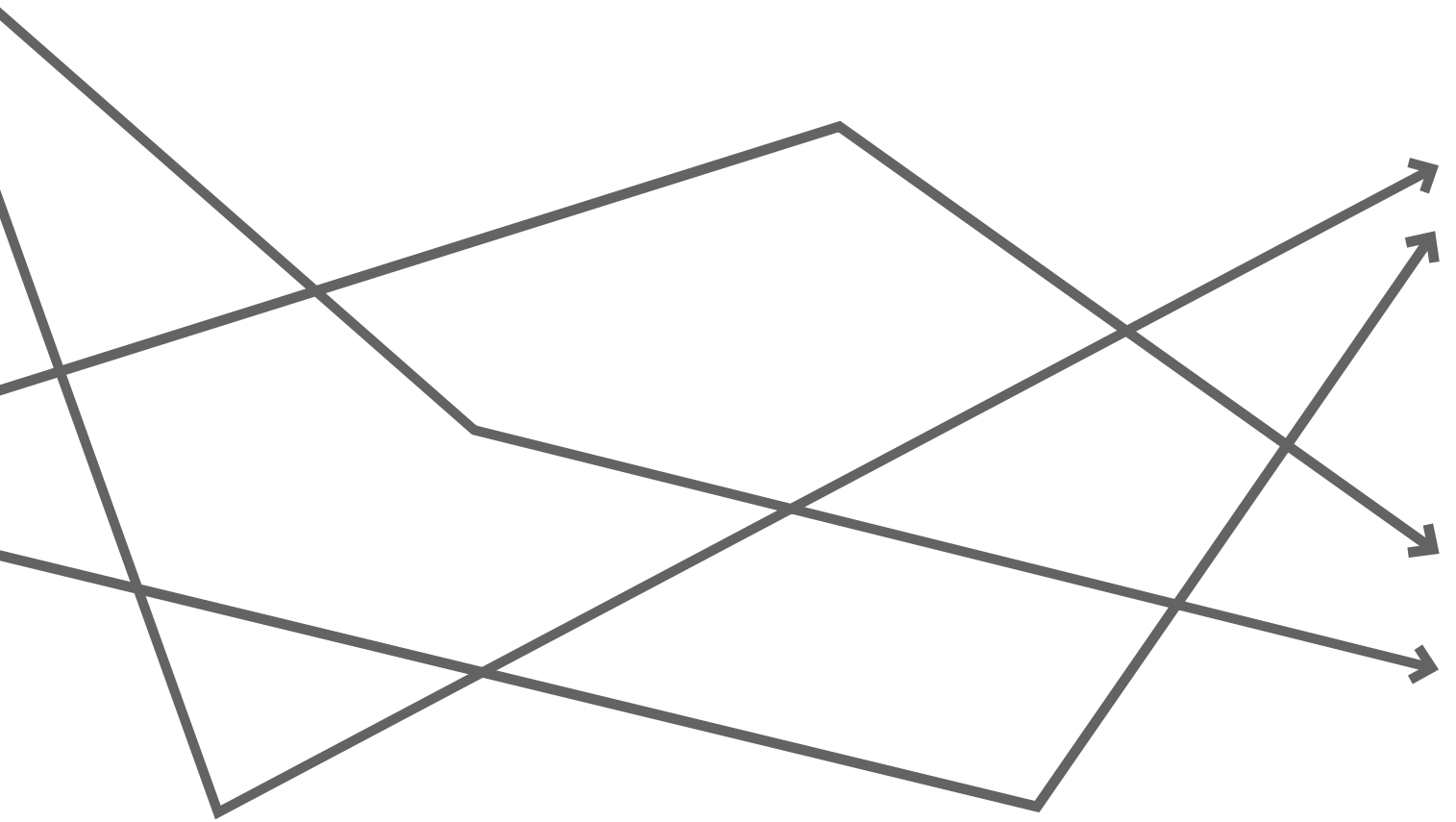
**Theme 3: Sustainability ROI**

- 15) *One of the objectives of the thesis is to study whether the measurement of sustainability ROI could enhance corporate decision-making in terms of sustainability investments. In the thesis, the measurement of sustainability ROI is, to a large extent, based on the idea that each business and industry generates different impacts, both positive and negative ones. Some of these impacts can be given a monetary value. Based on this view, I have created an impact model on Raisio's operations in four different life cycle stages. In which decision-making situations would Raisio's impact on sustainability, either as costs or benefits, be considered important?*
- 16) *In the impact model, are there impacts which you think should be included in sustainability investment accounting?*
- 17) *In the impact model, are there any impacts which should not be included in sustainability investment accounting?*
- 18) *In your opinion, how would the measurement of these impacts in monetary units as costs or benefits affect Raisio's investment decision-making?*
- 19) *Do you see the sustainability ROI metric as credible?*

Appendix B

Impact model





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